

DOC. # 5478
ADOPTED 4/9/92

BIOMEDICAL RESEARCH CENTER: BUILDINGS B AND C

CHARLESTOWN NAVY YARD

Sixteenth Street

Boston, Massachusetts

DRAFT ENVIRONMENTAL IMPACT REPORT

E.O.E.A. # 8883

April 1992

Proponent:

**Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201**

Environmental Consultants:

**Wind Consultant
Frank Durgin, P.E.**

**Shadow Consultant
Sasaki Associates, Inc.**



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Certificate of the Secretary on the Environmental Notification Form



The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

WILLIAM F. WELD
GOVERNOR

December 23, 1991

MARGO PAUL CELLICCI
DEPUTY GOVERNOR

SUSAN F. TERNEY
SECRETARY

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Biomedical Research Center - Buildings
B and C
PROJECT LOCATION : Sixteenth Street - Charlestown Navy
Yard - Boston
EOEA NUMBER : 8883
PROJECT PROPONENT : Boston Redevelopment Authority
DATE NOTICED IN MONITOR : November 22, 1991

Pursuant to the Massachusetts Environmental Policy Act (G. L., c. 30, s. 61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that the above project requires the preparation of an Environmental Impact Report (EIR).

The proposed project consists of the construction of 812,000 square feet (sf) of biomedical research space in two structures, known as Buildings B and C, on Parcels 6 and 7 at the Yard's End of the Charlestown Navy Yard (CNY). In addition to the 812,000 sf of research space, parking for 755 cars will be provided on the first three floors. The project site contains about 3.8 acres, and it contains filled Commonwealth tidelands.

Buildings B and C of the Biomedical Research Center (BRC) are considered a nonwater-dependent use. Nonwater-dependent uses of one or more acres of tidelands categorically require the preparation of an EIR according to 301 CMR 11.25(4). The proponent has requested a waiver of this requirement in accordance with 301 CMR 11.18. For the reasons I will discuss in this Certificate, I do not feel that a waiver should be granted in this case.

Buildings B and C are one part of the development that has been described in the Boston Redevelopment Authority's Master Plan for the CNY. At the end of 1990, the BRA submitted a Notice of Project Change (NPC) requesting to be permitted to proceed

with certain projects in the Yard's End. In response to the NPC, on January 2, 1991, the Secretary required that the 1978 Master Plan be updated to reflect the numerous changes in the development planned for the CNY over the preceding twelve years. In addition, there had been a number of regulatory changes since the 1978 Master Plan that required reconsideration within the development plan.

Certain projects (for example, the hotel and Building A of the Biomedical Research Center) were found to be consistent with the 1978 Master Plan and were allowed to proceed prior to the completion of the updated Master Plan. The Master Plan was required to address issues such as traffic, infrastructure, and historic preservation that lent themselves to analysis on a master plan level. The NPC Certificate further required that project specific ENFs be filed for Buildings B and C and the New England Aquarium, so that site specific issues and impacts could be properly evaluated. The Master Plan was prepared as a Draft and Final Supplemental EIR. The FSEIR was found to be adequate on October 17, 1991.

This ENF must be evaluated in this historical context. Because of the preparation of the Master Plan, much work has already been done on issues that would ordinarily be among those studied in an EIR for a project of this size and type. It is for this reason that the BRA argues that a waiver is appropriate. However, while I agree that certain issues have been satisfactorily studied, I feel that other issues need further consideration, on a project specific basis. Further, I do not believe that the BRA has demonstrated that preparation of an EIR would constitute "undue hardship," which is one of the findings I must make in order to grant a waiver. 301 CMR 11.13.

In the Certificate on the FSEIR, I required that additional information on several of the issues studied in the Master Plan be submitted. That information, and the deadlines by which I required that it be supplied, are as follows:

- 1) A wind tunnel study prior to the issuance of the Chapter 91 Waterways License;
- 2) A pier management plan by April 15, 1992;
- 3) A traffic mitigation plan to discourage through traffic in dense areas of Charlestown prior to the completion of the CNY's Phase I*; and

- 4) A transit mitigation plan prior to the completion of the CNY's Phase I.

* Phase I includes the hotel, marina, and Building A of the BRC. Buildings B and C and the Aquarium comprise Phase II.

The purpose of these reports is to ensure, through the identification and implementation of mitigation measures, that the expected impacts of the proposed development would be adequately mitigated, in accordance with the BRA's obligations under Section 61 of MEPA. This Certificate should not be interpreted to obviate the need for these reports on the schedule I have already established. In fact, I urge the BRA to include as much of this information as possible in the EIR for this project.

Because of the information developed in the Master Plan and the supplemental reports required above, the scope for this EIR can be fairly narrowly drawn, to focus on those site specific issues that will not be addressed in the supplemental information required in the October Certificate. As set forth below, the EIR should focus on the waterways licensing issues, the impacts of alternative building designs and site layouts, wind and shadow, and air quality.

A number of the comments have asked that the EIR address the traffic impacts of Buildings B and C. As I have noted in previous Certificates, traffic issues have not yet been fully resolved, in particular as they relate to traffic and transit mitigation. I am not including traffic among the issues to be studied in the EIR for this project. I have already required traffic and transit mitigation plans to be developed and submitted to me prior to the completion of Phase I of the CNY. Those reports will be made available for public review and comment and I intend to review them critically to determine whether the substantive requirements of MEPA have been met. Given the timetable I have established, these issues will be resolved before Phase II moves into construction.

SCOPE

This EIR should follow the MEPA Regulations at 301 CMR 11.07 for outline and content, as modified by this scope. It should address the comments listed at the end of this Certificate, to the extent that they are within the required scope, and should include a copy of this Certificate.

Alternative Building Design and Site Layout Analysis:

The EIR should include alternative building designs for Buildings B and C within the building envelopes approved by the Massachusetts Historical Commission. The EIR should also evaluate the proposed site layout and describe alternative site layouts within Parcels 6 and 7 that were considered in the Section 106 process. This analysis should provide a comparison of the differences between the environmental impacts associated with each of the alternative building designs and site layouts. The building designs and site layouts should analyze alternative locations, landscape layouts, and designs that will be inviting to the public. How can Parcels 6 and 7 be improved to maximize visual enjoyment and to minimize wind and shadow impacts?

Waterways Licensing:

The EIR must describe how the proposed project will comply with the Waterways Regulations, 310 CMR 9.00, the Boston Municipal Harbor Plan (MHP), and the development parameters approved in the Master Plan. Prior submissions to the MEPA Unit do not address site-specific waterways licensing concerns for Buildings B and C. The waterways licensing concerns are building massing, wind and shadow impacts, public views, facilities of public accommodation (FPA), open space, and site specific information as outlined in the Department of Environmental Protection's (DEP) comment letter.

The EIR should contain site and floor plans for Buildings B and C showing cross-sectional views and elevations of the floor levels. Both the MEPA Unit and the permitting agencies need to evaluate site design and layout. The EIR should inventory all existing and proposed site lines. The various design alternatives for the First and Second Avenue view corridors should be included in the EIR. These design alternatives should use pedestrian level perspectives to assess impacts to water views.

The EIR should respond to DEP's comment regarding the employee parking that is proposed for the ground floor, in the context of the Waterways regulations and Requirement 4 of the MHP. Requirement 4 dictates that ground floor space within 100 feet of the project shoreline be devoted to FPA unless an alternative location would promote public use and enjoyment of the site in a clearly superior manner. It specifies that the percentage of interior space devoted to FPA shall be at least 40 percent of the aggregate footprint of buildings on Parcels 4, 6, and 7. The EIR should show how much of the ground floor area of Buildings B and C will be devoted to facilities of public accommodation to contribute to the total of 40 percent.

Requirement 3 of the MHP requires 50 percent of the total CNY area be open space. The EIR must demonstrate compliance with this 50 percent open space requirement. It must also document the specific open spaces that will be tied to the construction of Buildings B and C. The party or parties responsible for open space design, construction, and maintenance should also be identified.

Wind and Shadow:

The EIR must consider specific building design alternatives as a means of reducing adverse wind and shadow impacts on the ground level pedestrian environment. While I realize that development of the Yard's End will in and of itself lead to greater public enjoyment of that area of the CNY, simply because the public will have a reason to go there that does not now exist, the BRA must strive to accomplish that development in a way that is truly inviting. It is little use to complete the Harborwalk along the Little Mystic Channel if it will be so windy and shadowed that no one will choose to walk there.

The EIR's mitigation measures should be guided by the wind tunnel testing of the Yard's End massing, as required in the Certificate of October 17, 1991 for EOEA #2383. This wind tunnel testing is essential to determine the potential impacts of wind at the pedestrian level. For purposes of the EIR, a wind analysis that evaluates pedestrian level impacts will be sufficient.

Mitigation for wind impacts is essential. The Little Mystic Channel's portion of the Harborwalk will be impacted by unacceptable winds for walking in all seasons except for summer. The EIR should consider DEP's recommendation to open Buildings B and C to a depth of 20 to 30 feet along the Harborwalk for the

first two to three stories and/or develop other measures to minimize wind impacts.

The Harborwalk north of Building B and C would be in shadow most days of the year. This area will remain dark and uninviting. I encourage the proponent to explore mitigation measures that could be implemented to lessen the shadow impacts of the proposed project or improve the quality of the pedestrian experience in that location.

Air Quality:

As noted in DEP's comment, preconstruction approval from DEP is required if the operation of the BRC includes air emissions greater than one ton per year. Preinstallation approval is needed for any machinery/equipment which emit air contaminants above the thresholds specified in 310 CMR 7.02 or for an emergency generator(s) greater than 3 MM BTU/hour. The EIR must respond to the comments of the DEP with respect to the air quality impacts of the project.

Miscellaneous:

The EIR should describe the potential types and quantities of waste, including medical waste, that will be generated by the project, how those wastes will be managed and disposed of, and identify the agencies with regulatory responsibility for these issues.

The EIR should also address the comments that are listed below, to the extent that they are within the subject matter of this scope.

Circulation:

In addition to the required distribution (301 CMR 11.24(3)), one copy ~~should~~ be made available for public inspection at the

Boston Public Library (Charlestown Branch). The Proponent should expand its distribution list to include all comments received below, as well as other neighborhood organizations in Charlestown.

December 23, 1991

DATE

Thomas P. McShane
Susan F. Tierney, Secretary

Comments received : BWSC, 11/26/91
EOTC, 12/6/91
Carol Shearer, 12/8/91
MHC, 12/9/91
Boston Transportation Dept., 12/9/91
Conservation Law Foundation, 12/9/91
Alice Templeton, 12/9/91
MCZM, 12/10/91
MWRA, 12/10/91
Shipways Condominium Assoc., 12/10/91
Janice L. Elia, 12/10/91
Rosemary Kverek, 12/10/91
Rosemary Kverek, 12/10/91
Boston Landmarks Commission, 12/12/91
Boston Environment Dept., 12/12/91
DEP/NE, 12/12/91
Constellation Wharf, 12/12/91
The ad hoc Coalition, 12/12/91
Charlestown Preservation Society, 12/12/91
DEP/Wetlands & Waterways, 12/18/91
Rep. Thomas F. Birmingham

SFT/WTG/wg

CHAPTER ONE: SUMMARY

- A. **PROJECT NAME:** Buildings B and C of the Biomedical Research Center
- B. **EOEA FILE NUMBER:** #8883
- C. **SUMMARY PROJECT DESCRIPTION:**

Buildings B and C are the second and third buildings of a Biomedical Research Center proposed for the Charlestown Navy Yard. Buildings B and C represent 812,000 square feet of the total Biomedical Research Center of 1,100,000 square feet. The use of Buildings B and C will be biomedical research and laboratory uses and accessory uses.

The first building, Building A, has already received MEPA approval and is not the subject of this Draft Environmental Impact Report (DEIR).

The second building, Building B, will be developed on Parcel 7 and will comprise two wings in an L shape. Building B will have three levels of above-grade parking, with nine floors of biomedical research and lab space above. The third building, Building C, will be built on Parcel 6, between Building B and Parcel 5. Building C will have three levels of above-grade parking with six floors of biomedical research and lab space above. The building heights for the Proposed Project are for Building B: 155 feet and for Building C: 110 feet.

Construction of Buildings B and C is planned to occur in two phases; occupancy of up to 550,000 square feet of the total Biomedical Research Center (A,B, and C) will occur during 1993-94, with the balance after January 1, 1995, in accordance with Article 42F of the Boston Zoning Code and the City of Boston Municipal Harbor Plan approved by the Secretary of the Executive Office of Environmental Affairs (the Secretary).

Buildings B and C are an important component of an overall redevelopment program for the Charlestown Navy Yard which was developed over the course of an extensive

community process that commenced in 1987 and included over 125 public meetings held with Charlestown residents, local merchants, harbor advocacy groups, historic preservation officials and numerous other interest groups. Furthermore, Buildings B and C are consistent with the redevelopment program evaluated in the Charlestown Navy Yard Redevelopment Draft Supplemental Environmental Impact Report E.O.E.A. #02383 (DSEIR) and Final Supplemental Environmental Impact Report (FSEIR) approved by the Secretary on August 2, 1991 and October 17, 1991 respectively.

D. SUMMARY OF THE ALTERNATIVE

The Alternative under study in this DEIR is similar to the Proposed Project in square footage, building heights, and use, consisting of biomedical research, laboratory uses, and accessory uses. The massing of the Alternative differs from the Proposed Project in that the buildings are arranged in a format parallel to the three main avenues of the Navy Yard along Sixteenth Street.

E. FEDERAL AND STATE PERMITS AND APPROVALS

It is expected that development of the Biomedical Research Center Buildings B and C will be subject to the following federal and state environmental review and permitting programs. Applications for these and any other required approvals will be filed as the project design and development program are refined.

File Number: W90-0686

Sewer Connection Permit
Massachusetts Department of Environmental Protection
To be filed

Fossil Fuel Utilization Permit
Massachusetts Department of Environmental Protection
To be filed

Industrial Use Discharge Permit
Massachusetts Water Resources Authority
To be filed

Medical Waste Generator Permit
U.S. Environmental Protection Agency
To be filed

F. FINANCIAL ASSISTANCE SOUGHT

No financial assistance is being sought from any public agency of the city, state or federal governments for the construction of the proposed Biomedical Research Center.

G. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

1. Views

2. Wind

The wind tunnel study for the Proposed Project demonstrates that pedestrian level wind impacts fall within generally acceptable parameters and confirms the benefit of an open facade treatment for the first three parking levels of the Proposed Project as suggested in the Secretary's ENF Certificate. This mitigation measure which will be incorporated in the Proposed Project creates acceptable conditions for walking along significant portions of Harborwalk at the Little Mystic Channel. As a result, the BRA guideline velocity of 22 mph

is only exceeded along Parcel 6. This exceedence is primarily due to northerly and northeasterly winds which are predominantly associated with storm conditions. At such times pedestrians would not be expected along the Harborwalk.

The BRA guideline velocity is also exceeded in another location under full buildout of the Charlestown Navy Yard Master Plan. These exceedences however result primarily from the planned addition to Building 114. The Alternative creates greater impacts than the Proposed Project at this location.

All other pedestrian areas throughout the Navy Yard from Thirteenth Street to Yard's End exhibit favorable pedestrian level wind conditions with the Proposed Project. Harbor facing Harborwalk, Yard's End Plaza, and the Second Avenue view corridor fall within generally acceptable pedestrian level wind standards for walking and stationary activities. Furthermore, the proposed mitigation of an open facade design for the first three parking levels suggested by the Secretary has been incorporated to make the Little Mystic Channel Harborwalk as pleasant as possible during times that pedestrians will actually use this area.

3. Shadows

Comparisons between the Proposed Project and Alternative conditions for Buildings B and C demonstrate that direct sunlight conditions are considerably improved by the Proposed Project, particularly along Harborwalk and Second Avenue.

The area of sun is much greater in the Yard's End Plaza created under the Proposed Project, particularly at times when shadows from existing buildings encroach upon the plaza area. This occurs the Yard's End Plaza is larger under the Proposed Project configuration than under the Alternative. The shadow from Building #106 covers almost half of Yard's

End Plaza under the Alternative configuration. Because a larger Plaza results under the Proposed, the proportion of Plaza space shadowed is much less.

Shadows cast by Buildings B and C of the Biomedical Research Center will put the northernmost section of the Harborwalk in shadow for many days of the year. This is primarily due, however, to the northeastern orientation of Harborwalk and not as a direct result of building height. A 55-foot tall building on this site would have similar effects. However, the Proposed Project allows sun for several hours almost half of the year along portions of Harborwalk near its L-shaped notch.

Building C casts shadows along the Second Avenue corridor until mid- to late-afternoon. Because Building C is longer in the Alternative case, this condition is always worse for this case. Building B shadows Second Avenue in the late afternoon most months of the year. However, impacts on Second and First Avenues are no greater than they would be under the heights allowed by the 1978 Master Plan.

No shadow impacts occur on Sixteenth Street.

4. Open Space

Publicly-accessible open space provided through the Proposed Project exceeds that required by the Charlestown Navy Yard Zoning and the Municipal Harbor Plan. The open space created in connection with the Proposed Project exceeds that of the Alternative.

Yards End Plaza, at the intersection of First Avenue and Sixteenth Street, will provide a critical waterfront view corridor across Pier 11 while creating a formal entry of more than 25,000 square feet to the proposed five-acre Yard's End Park.

Second Avenue Mall will be continued as a pedestrian spine duplicating the award-winning details found between Fifth and Ninth Streets including granite pavers, mature trees, period benches, annual plantings, and lighting standards.

A Working Port Viewing Area will offer visitors a vista overlooking the Little Mystic Channel and the Moran Container Terminal with an interpretive plaque describing Charlestown's heritage as a industrial waterfront.

5. Waterways - Chapter 91

Site specific information concerning facilities of public accommodation (FPAs), open space, and the impacts of building massing on public views, wind, and shadows is provided in the Waterways section of this DEIR. While ground floor interim space within 100 feet of the project shoreline must be devoted to facilities of public accommodation, in this case that portion of the site lies on the exposed, northeastern edge of the site. The proposed location for FPAs along First Avenue and on Yard's End Plaza has been selected as a preferable alternative. This landside location enhances the destination value of the other public facilities at Yard's End, helps to activate neighboring open spaces, takes advantage of the most favorable sun and wind conditions on the site, and draws pedestrians toward the water.

The open spaces proposed will satisfy the 50 percent open space requirement incorporated in the approved Municipal Harbor Plan as illustrated in Sections D and E of Chapter 4 of this DEIR.

The building massing for the Biomedical Research Center has been designed to satisfy the requirements of the Design Guidelines for the New Development Area (as amended July 19, 1991) which were approved by the Massachusetts State Historic Preservation Officer and

the Advisory Council on Historic Preservation. The building massing provides for unobstructed view corridors along Second Avenue and First Avenue, and incorporates various recommendations for the mitigation of wind and shadow impacts.

6. Air Quality

Minimal short-term impacts to air quality are anticipated during the construction of Buildings B and C. An increase in air-borne particulate matter would occur in the form of fugitive dust from building demolitions, excavation, storage of earth and exposed aggregate, and construction activities. Pollutant emissions will be generated by equipment and trucks. Friable asbestos may be present in the buildings scheduled for demolition. During the operation of the Biomedical Research Center, research activities have the potential to release hazardous air contaminants to the atmosphere through evaporation and working losses. Additional emissions may be produced by space heating for the buildings, emergency generators and other process equipment.

Mitigation measures employed during construction can successfully mitigate air quality impacts, such as minimal on-site storage of aggregate and excavated soil and storing that on-site away from pedestrian walkways, periodic wetting, covering trucks used to transport material and debris, and periodic street and sidewalk cleaning. During demolition continuous wetting can reduce dust levels by as much as 80 percent. For the handling and removal of asbestos, all health and safety measures required by the U.S. Environmental Protection Agency, the Massachusetts Department of Environmental Protection, and the Massachusetts Department of Labor and Industries will be followed.

During project operation, the use of special fume hoods and filtered ventilation ducts will prevent the discharge of hazardous gaseous emissions, radioactive effluent, or any other contaminants into the atmosphere. The control and containment of emissions from research activities is the legal and operational responsibility of the research entities and are governed by permits or licenses from federal, state and local authorities. Air quality permits are also required from the DEP prior to construction, which will ensure that if required, air pollution control equipment will be installed.

7. Waste

All structures existing at the site of the Proposed Project will be demolished and the materials recycled, if suitable. Only limited excavation is planned. Total construction debris is estimated to be less than 2,850 cubic yards and will be removed frequently from the site in order to avoid any problems associated with accumulation.

Nonhazardous solid waste during operations (primarily paper) is estimated at less than 1,100 tons per year. Although it is common for companies engaged in biomedical research to require the use of chemicals, radioisotopes, and biological materials, these will be used in quantities quite small compared with manufacturing or processing companies and will be treated appropriately as described herein.

The disposal of nonhazardous solid waste during the construction phase and the operations phase will be done in accordance with local and state regulations. Measures to mitigate any impacts anticipated will be incorporated in the Construction Management Plan required pursuant to the Development Review Requirements set forth in Article 31 of the Boston Zoning Code.

The disposal of hazardous materials, such as asbestos or oil-contaminated soil, will be in accordance with current state and federal regulations, and will be carried out by certified contractors after appropriate public notice of the removal schedule. The Commonwealth of Massachusetts has declared the site of the Proposed Project a non-priority disposal site and has approved remediation measures for dealing with fuel and oil storage tanks and subsurface materials of concern.

All hazardous waste will be manifested prior to removal from the site in order to provide a fully traceable path from the holding area on-site to final disposal off-site.

CHAPTER TWO: PROJECT DESCRIPTION

A. DESCRIPTION OF THE PROPOSED PROJECT

Development Program

The Proposed Project consists of the second and third buildings of a three-building Biomedical Research Center, referred to as Buildings B and C.

The Biomedical Research Center at the Charlestown Navy Yard (CNY) consists, in its entirety, of 1,100,000 square feet of gross floor area dedicated to biomedical research and laboratory uses and accessory uses in three buildings. Buildings B and C together total 812,000 gross square feet.

The Biomedical Research Center will provide substantial job opportunities to the Charlestown community while supporting the rapidly growing biomedical and biotechnological sector of the Boston and regional economy. The Biomedical Research Center is one component of the Charlestown Navy Yard Redevelopment which was described in a Draft Supplemental Environmental Impact Report (DSEIR) and a Final Supplemental Environmental Impact Report (FSEIR), EOEA #02383.

The first building, referred to as Building A, has already received MEPA approval and is not the subject of this Draft Environmental Impact Report (DEIR). Building A was approved in the Secretary's Certificate issued on January 2, 1991.

The second building, called Building B, will be developed on Parcel 7 and will comprise two wings in an L shape. Building B will have three levels of above-grade parking, with nine floors of biomedical research and lab space above. The third building, Building C, will be built on Parcel 6, between Building B and Parcel 5. It will have three levels of above-grade parking with six floors of biomedical research and lab space above.

Conceptual design of the Biomedical Research Center is illustrated in Figures ____.

Elevation data is presented in Table ____.

Site Description

The general site of the Proposed Project is the Yard's End area at the northeastern corner of the Navy Yard. Specifically, the project site is the northeasterly portion of Parcel 7 and all of Parcel 6 consisting of ____ square feet. The site is roughly pentagonal in shape, and is bounded by a line parallel to Sixteenth Street to the west, CNY Parcel 5 to the south, Boston Inner Harbor to the east, Little Mystic Channel to the north, and the Building 114 site to the northwest.

The site is currently occupied by five vacant industrial buildings -- Buildings #193, #131, #203, #165, and #225 -- which range in height from one to three stories, and which were in use during operation of the former Boston Naval Shipyard facilities, decommissioned by the U.S. Navy in 1974. All of the existing structures at CNY Parcels 6 and 7 will be demolished to make room for the Proposed Project.

The large, vacant parcels at Yard's End are optimal for the development of the large floor plates necessary for research uses while also creating extensive public open space.

Design

A variety of height, orientation, and massing alternatives were examined for Buildings B and C in the context of the review of applicable Design Guidelines for Yard's End by historic preservation agencies. A discussion of these alternatives is summarized in this DEIR. (See also Appendix 7 of the Charlestown Navy Yard Redevelopment Draft Supplemental Environmental

Impact Report (DSEIR), EOEA #02383 and Response to Comment 2 of the DSEIR Certificate, beginning at page 25 of the Charlestown Navy Yard Redevelopment Final Supplemental Environmental Impact Report (FSEIR)).

In order to preserve streetscapes, view corridors, and the historic character of the Charlestown Navy Yard, building heights will be limited to 155 feet at Building B and 110 feet at Building C. This is in accordance with the *Amendment to Design Guidelines for the New Development Area, Charlestown Navy Yard*, dated July 19, 1991, which was approved by the Massachusetts State Historic Preservation Officer and the Advisory Council on Historic Preservation.

Facilities of Public Accommodation

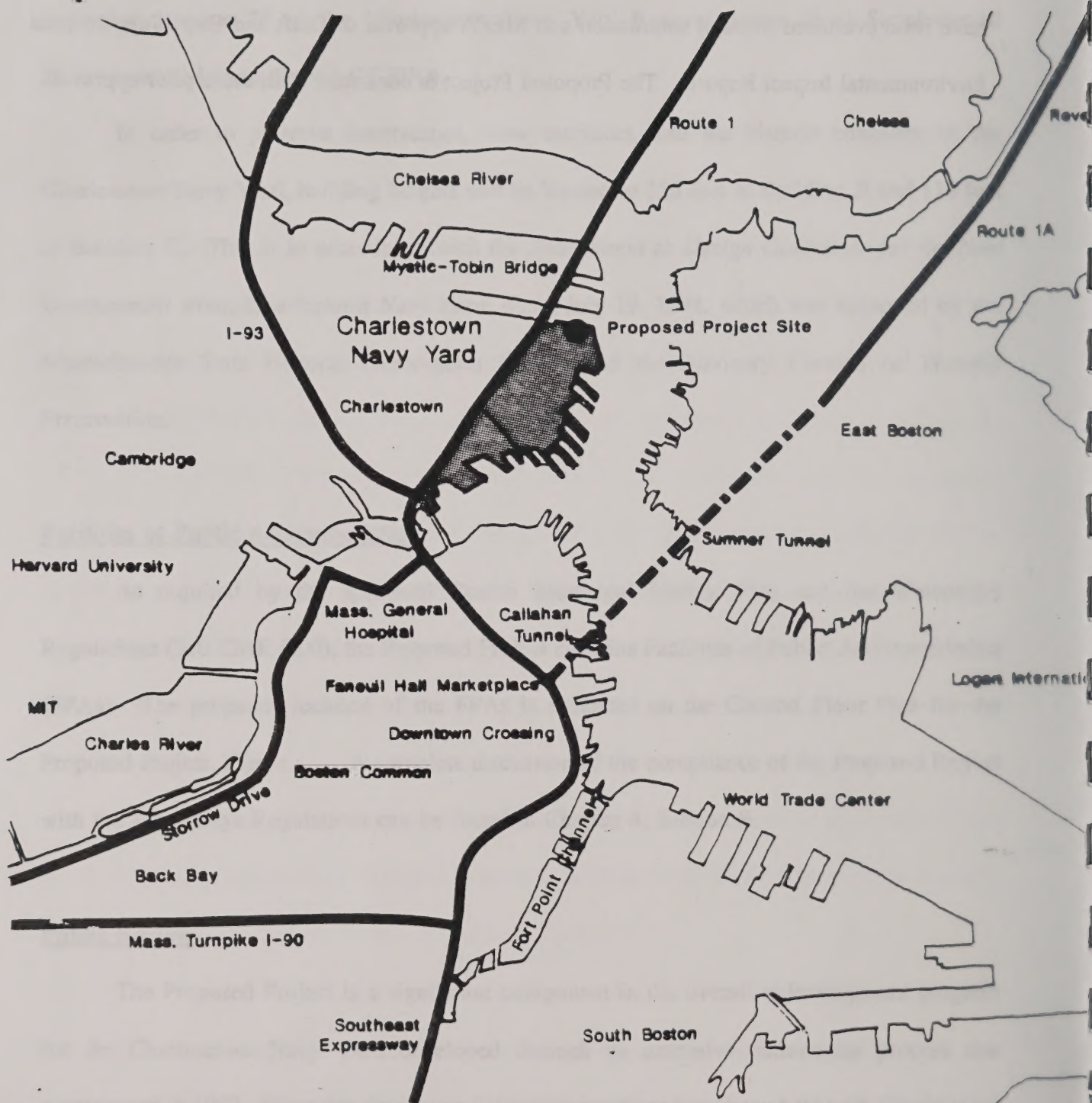
As required by the approved Boston Municipal Harbor Plan and the Waterways Regulations (310 CMR 9.00), the Proposed Project contains Facilities of Public Accommodation (FPAs). The proposed location of the FPAs is indicated on the Ground Floor Plan for the Proposed Project, Figure _____. A complete discussion of the compliance of the Proposed Project with the Waterways Regulations can be found in Chapter 4, Section E.

Public Review

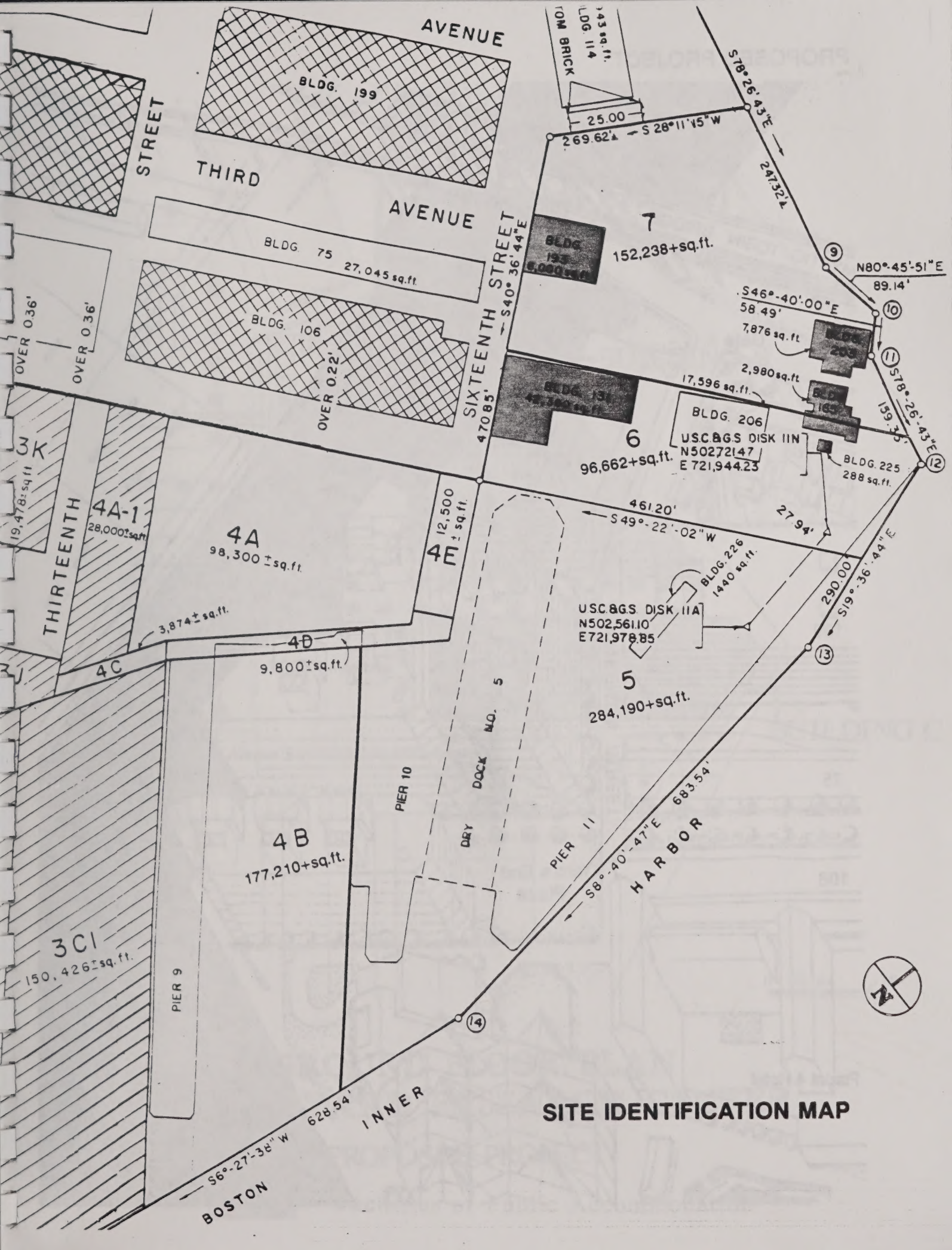
The Proposed Project is a significant component in the overall redevelopment program for the Charlestown Navy Yard developed through an extensive community process that commenced in 1987. Since that time, over 125 public meetings have been held with Charlestown residents, local merchants, harbor advocacy groups, historic preservation officials, organized labor and other interested organizations to create a plan that fulfills the goals identified through the

three-year process. Furthermore, the environmental impacts of the entire redevelopment program have been evaluated through submission and MEPA approval of Draft and Final Supplemental Environmental Impact Reports. The Proposed Project is consistent with these prior approvals.



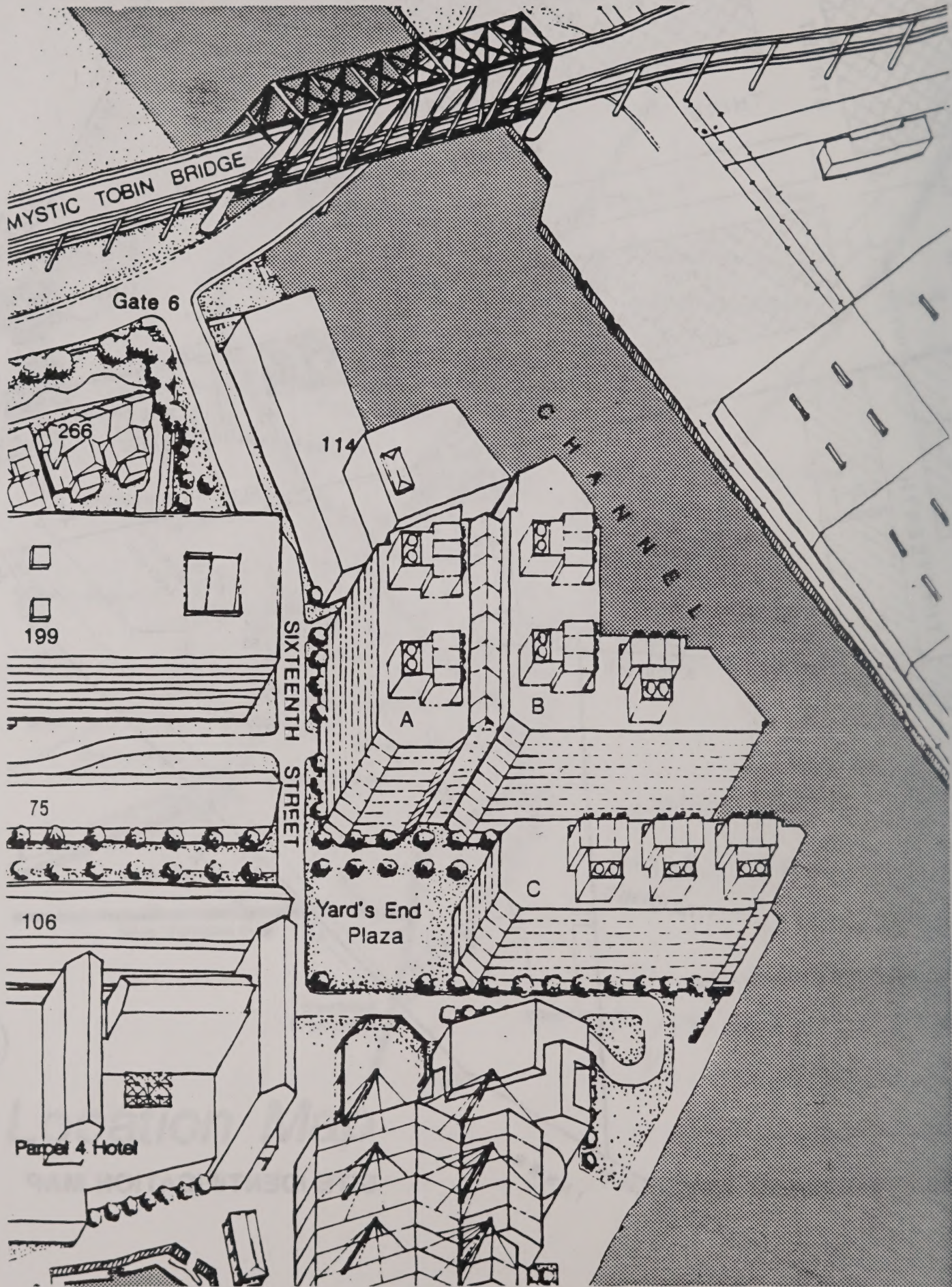


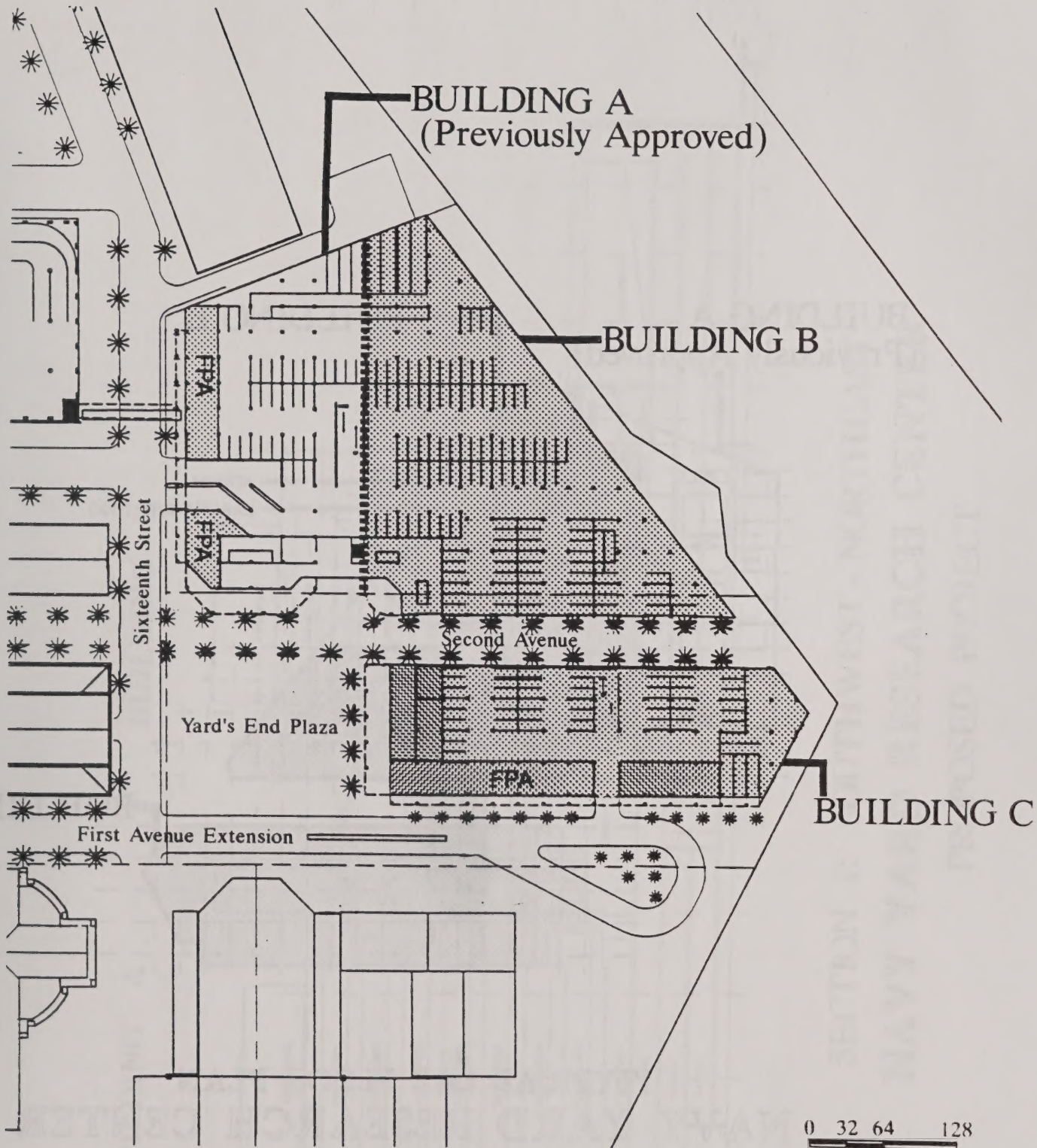
Location Map



SITE IDENTIFICATION MAP

PROPOSED PROJECT

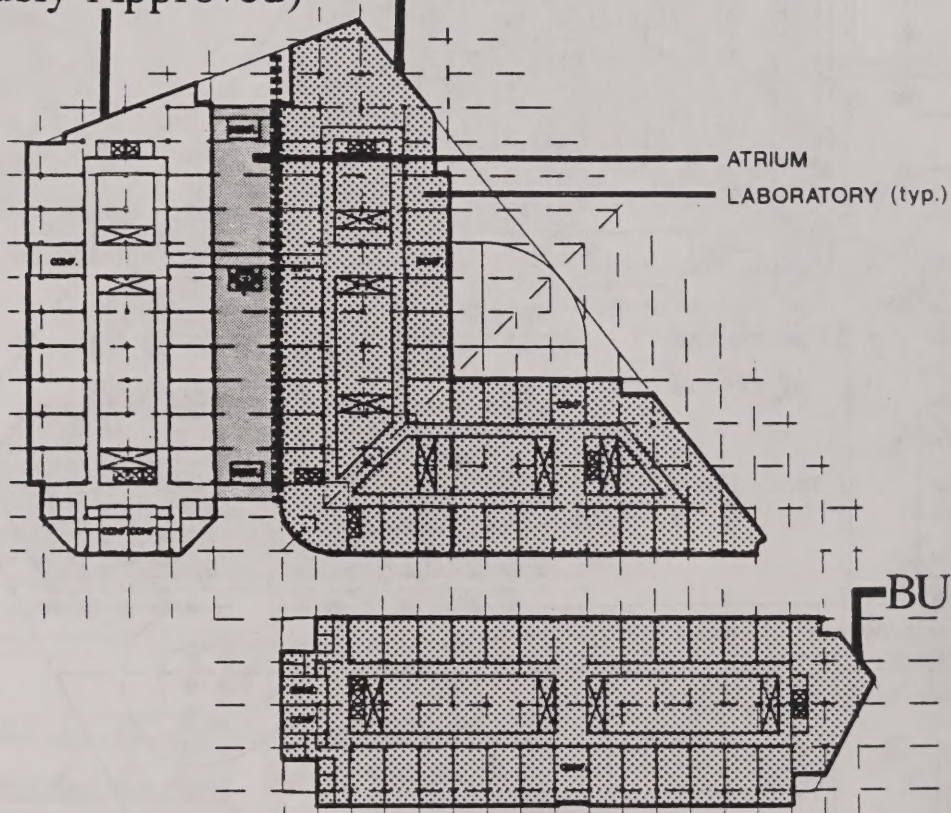




GROUND FLOOR PLAN NAVY YARD RESEARCH CENTER PROPOSED PROJECT

BUILDING A
(Previously Approved)

BUILDING B

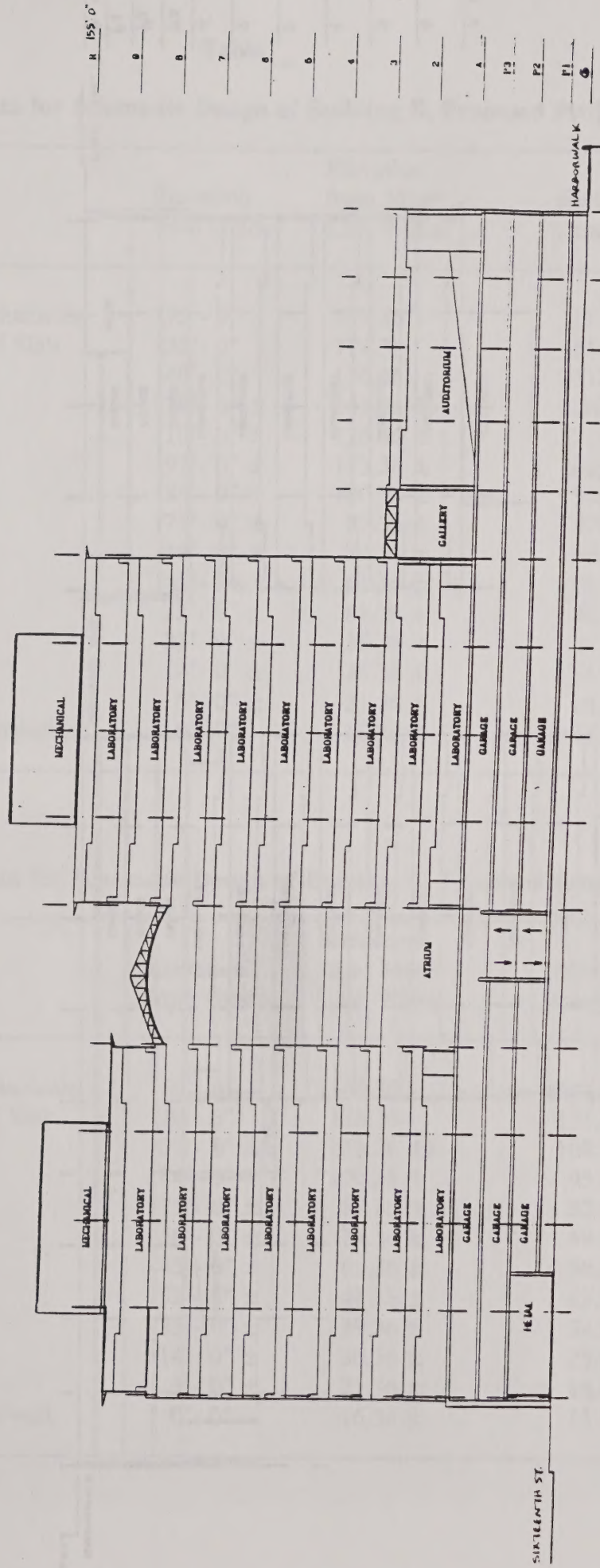


TYPICAL LAB FLOOR PLAN
NAVY YARD RESEARCH CENTER
PROPOSED PROJECT

0 32 64 128

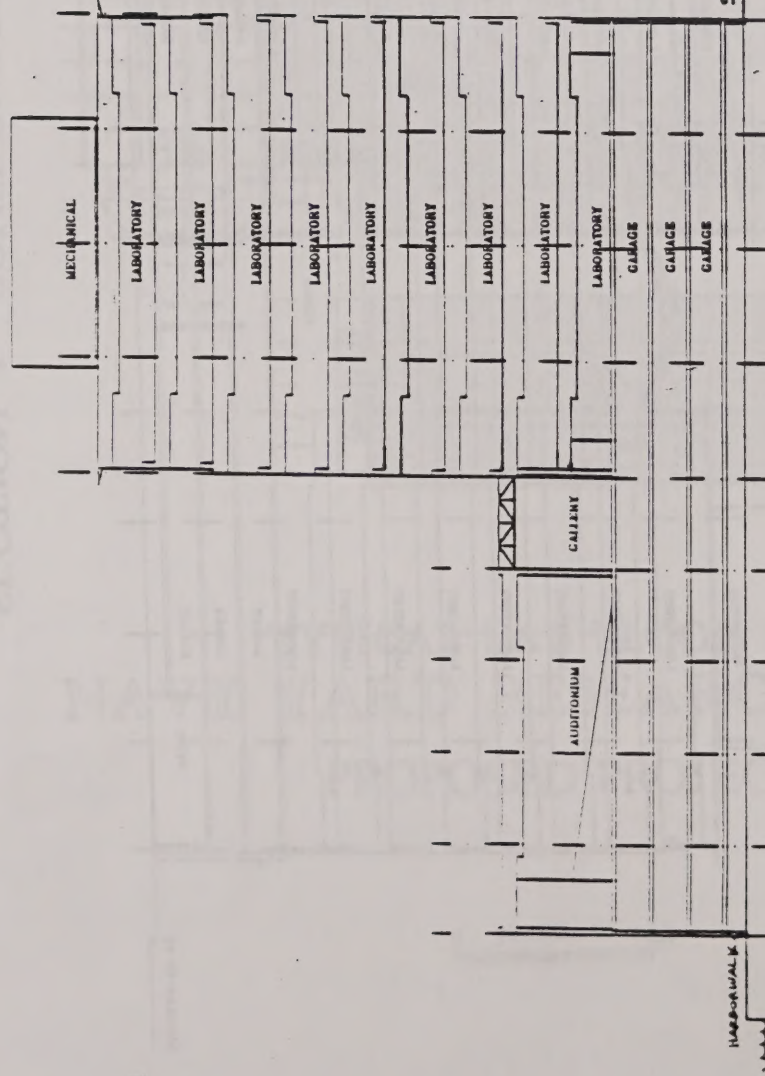
BUILDING A

BUILDING B

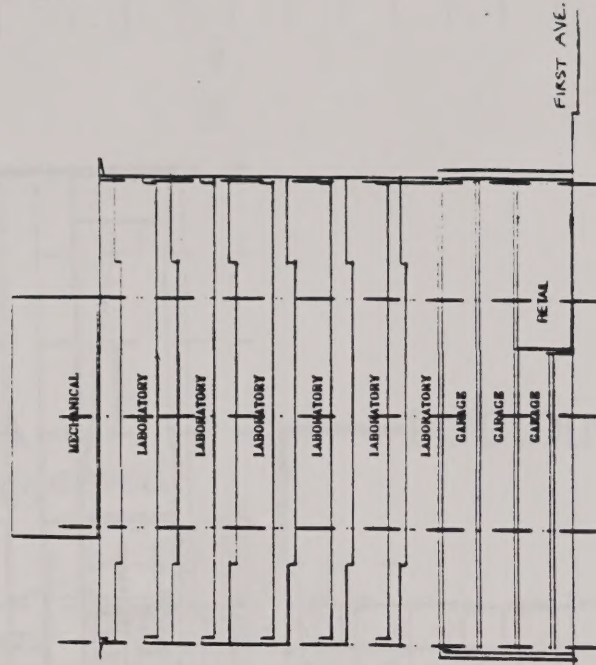


SECTION 1: SOUTHWEST - NORTHEAST
NAVY YARD RESEARCH CENTER
PROPOSED PROJECT

BUILDING B



BUILDING C



R 110-0
6
5
4
3
2
A
P3
P2
P1
G 0-0

SECTION 2: NORTHWEST - SOUTHEAST NAVY YARD RESEARCH CENTER PROPOSED PROJECT

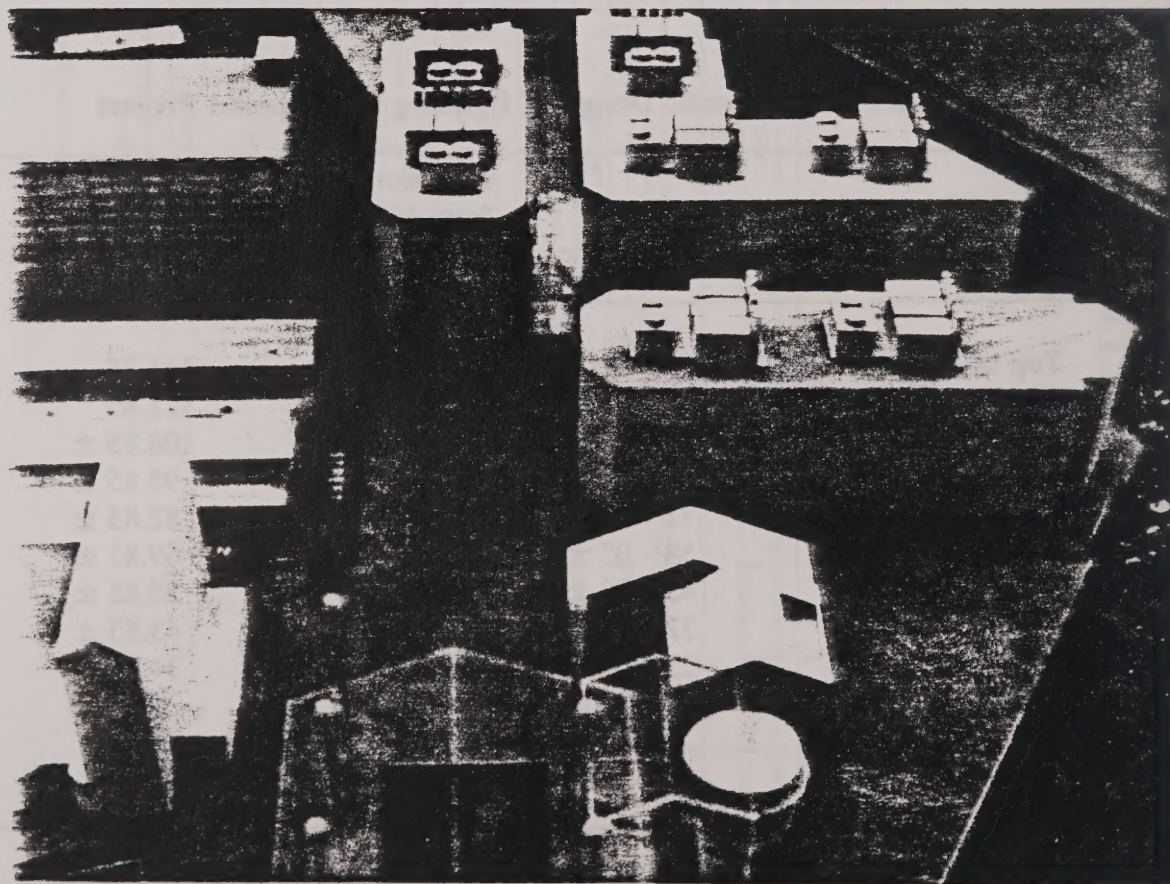
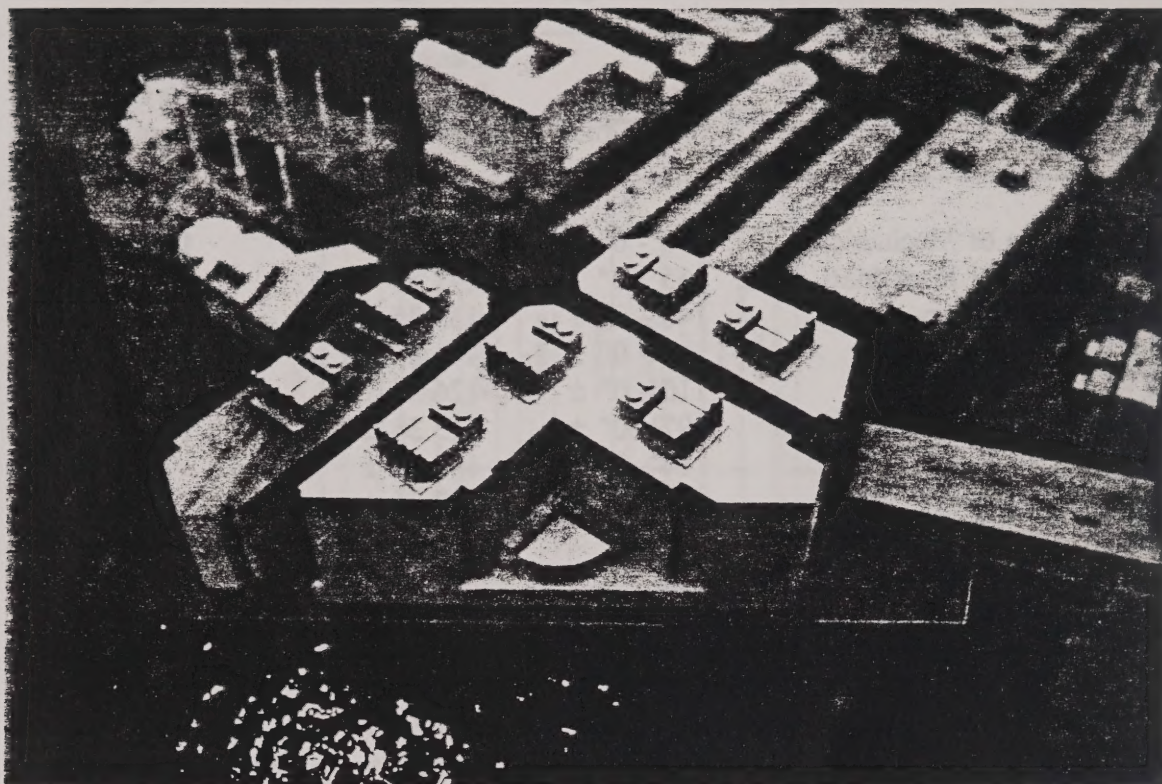
Table __

Elevation Data for Schematic Design of Building B, Proposed Project

Floor	Use	Elevation from Grade	Elevation from Mean Low Water	Elevation from NGVD
M	Top of Mechanicals	175'- 0"	191.36	186.85
R	Top of Roof Slab	155'- 0"	171.36	166.85
9	Laboratory	140'- 0"	156.36	151.85
8	Laboratory	125'- 0" ±	141.36 ±	136.85 ±
7	Laboratory	110'- 0" ±	126.36 ±	121.85 ±
6	Laboratory	97'- 0" ±	113.36 ±	108.85 ±
5	Laboratory	84'- 0" ±	100.36 ±	95.85 ±
4	Laboratory	71'- 0" ±	87.36 ±	82.85 ±
3	Laboratory	58'- 0" ±	74.36 ±	69.85 ±
2	Laboratory	45'- 0" ±	61.36 ±	56.85 ±
1	Laboratory	32'- 0" ±	48.36 ±	43.85 ±
P3	Parking	23'- 0" ±	39.36 ±	34.85 ±
P2	Parking	14'- 0" ±	30.36 ±	25.85 ±
P1	Parking	5'- 0" ±	21.36 ±	16.85 ±
G	Retail/Harborwalk	0'- 0"	16.36 ±	11.85 ±

Elevation Data for Schematic Design of Building C, Proposed Project

Floor	Use	Elevation from Grade	Elevation from Mean Low Water	Elevation from NGVD
M	Top of Mechanicals	130'- 0"	146.36	141.85
R	Top of Roof Slab	110'- 0"	126.36	121.85
6	Laboratory	97'- 0" ±	113.36 ±5	108.85 ±
5	Laboratory	84'- 0" ±	100.36 ±	95.85 ±
4	Laboratory	71'- 0" ±	87.36 ±	82.85 ±
3	Laboratory	58'- 0" ±	74.36 ±	69.85 ±
2	Laboratory	45'- 0" ±	61.36 ±	56.85 ±
1	Laboratory	32'- 0" ±	48.36 ±	43.85 ±
P3	Parking	23'- 0" ±	39.36 ±	34.85 ±
P2	Parking	14'- 0" ±	30.36 ±	25.85 ±
P1	Parking	5'- 0" ±	21.36 ±	16.85 ±
G	Retail/Harborwalk	0'- 0"	16.36 ±	11.85 ±



B. OBJECTIVES AND ANTICIPATED BENEFITS

1. Completion of the Charlestown Navy Yard Master Plan

A key component of the recently approved Charlestown Navy Yard Master Plan -- and the subject of this DEIR -- is the Biomedical Research Center planned for Parcels 6 and 7 located at the Yard's End.

During the past seven years, the Charlestown Navy Yard has experienced nearly \$500 million in private investment leveraged by \$25 million in public funds which has resulted in new housing, commercial offices, and recreational open spaces. With the leasing by Massachusetts General Hospital of 645,000 square feet of medical research space, the Navy Yard has also become one of Boston's most important areas for the new biomedical economy and its job opportunities.

Despite these numerous achievements, there remains much in the way of economic potential to be realized in the Charlestown Navy Yard. In order to achieve this potential, the development program for the Charlestown Navy Yard must be completed according to the Master Plan which was developed in close cooperation with the Charlestown community.

The completion of the Charlestown Navy Yard according to the Master Plan will bring substantial public benefits to Boston and the region:

- o Approximately 3,700 construction jobs and 4,000 permanent jobs, with requirements that a significant percentage of these employment opportunities be made available for Boston residents, minorities and women.
- o Approximately \$7.37 million and \$1.47 million in housing and jobs linkage payments, respectively.
- o Approximately \$15.5 million in additional annual property tax revenues.
- o Over \$7 million in one-time state income taxes during the construction periods.

- o Nearly \$6.4 million in annual permanent state income taxes from newly created jobs.
- o Over 10 acres of additional open space in the Navy Yard, and 6,500 linear feet of publicly accessible waterfront walkways incorporated in the Harborwalk system.

The realization of the Charlestown Navy Yard Master Plan depends in large measure on the successful development of the Biomedical Research Center. The benefits associated with the Biomedical Research Center development are described below.

2. Economic Growth

The Biomedical Research Center will support the rapidly growing biomedical and biotechnological sector of the Boston and regional economy. Research conducted by Boston's many prominent institutions of higher education and medicine will continue to spawn industries in biotechnology, pharmaceutical products, computer software, medical instruments, and other high technology areas.

Boston's institutional base -- its hospitals, research facilities, and universities -- have made Boston a national center for advanced science and medicine. Along with the growing biotech industry, these schools, institutes and companies today account for over one billion dollars in annual research activities.

Boston's hospital and medical school community has invested \$750 million in new facilities since 1984, and has committed an additional \$500 million to upgrading clinical facilities during 1991 and 1992 alone. During the rest of the decade, these institutions are planning an estimated total of more than \$1 billion in new facilities to accommodate the latest procedures and equipment.

The Massachusetts General Hospital Research Center at Building 149 heralds the emergence of the Navy Yard as a primary center of this new economic activity. With its

foundation of medical research, the Charlestown Navy Yard promises to become one of Boston's centers for this new industry. The benefits of this strategy are already evident. Two biotechnology start-up firms, Diacrin Inc. and Biotransplant Inc. recently moved into newly-renovated buildings at the Navy Yard adjacent to the MGH Research Center.

Boston leads all other U.S. cities in receipt of National Institutes of Health (NIH) research funding for biomedical study, and its growth is outpacing that of New York City, its only close competitor. Boston has more institutions than any other city in the top 100 grant recipients; six of the top seven independent U.S. hospitals receiving NIH grants in 1989 were in Boston.

One of the most important economic benefits generated by the medical research industry is the broad range of job opportunities, across a wide spectrum of education and salary levels. According to the Medical Industry Survey conducted by the BRA Research Department in 1987, approximately 55% of the jobs in medical research carried out at Boston hospitals are held by people who possess no higher than a bachelor's degree. (See Table ____).

The institutions and companies envisioned as part of the Yard's End redevelopment are of a type and stature that are extremely well positioned to produce what national and world markets will increasingly demand. The Charlestown Navy Yard Master Plan builds on the fundamentals required for Massachusetts to grow in the world economy allowing the Navy Yard to play an important role in returning economic prosperity to the Commonwealth. However, the growth potential inherent in the region's fundamental economic strengths might not be reached if it becomes impossible to bring public and private investment together, in places like the Navy Yard, to reinvigorate the regional economy.

Table __

Boston Hospital Research Employment by Education Level and Occupation

	<u>Medical Research Employment</u>	<u>Percent Employed</u>	<u>Advanced Degree</u>	<u>Bachelor's Degree</u>	<u>High School or A.A.</u>
Research Scientists	2,090	34.5	1,973	117	0
Doctors	755	12.5	755	0	0
Lab Technicians	1,598	26.4	0	1,347	252
Computer Technicians	82	1.3	0	82	0
Administrative	331	5.5	3	309	18
Secretaries/Clerks	892	14.7	0	0	892
Janitorial	116	1.9	0	0	116
Other	187	3.1	0	6	181
Total	6,050	100	2,732	1,860	1,458
Percent	100%	n/a	45.2%	30.7%	24.1%

Note: Employment is based on Full Time Equivalent (FTE) Employment data provided by 12 hospitals and extrapolated to the total of 17.

Source: BRA Research Department, Medical Industry Survey, 1987.

3. Affordable Housing/Linkage

The shortage of affordable housing adversely affects the region's competitive advantage in maintaining current business activity and attracting new growth. The development of the Proposed Project will provide substantial benefits in the form of affordable housing creation.

In addition to enhancing economic and social opportunities for the regions's residents, an increase in the region's affordable housing stock is important for economic development. Reduction in the cost of living of employees can help set the stage for a more competitive business climate in comparison to other regions.

Completion of the Proposed Project (Buildings B and C) of the Biomedical Research

Center will contribute an additional \$4,060,000 of housing linkage funds towards the construction of affordable housing. Assuming an average subsidy of \$25,000 per dwelling unit, these funds could assist in the construction of 162 units of affordable housing.

4. Employment/Job Training

Generations of Boston and Charlestown families have depended upon the Charlestown Navy Yard for jobs and livelihood. Charlestown businesses such as restaurants, services and other retail stores have depended on the economic boost of this employment center. The Biomedical Research Center offers a significant opportunity to create well-paying, skilled jobs. It is estimated that the Proposed Project alone will generate approximately 1,700 new permanent jobs.

Moreover, the Proposed Project will generate jobs linkage funds which will be used to provide job training assistance to Boston residents in the growing area of biomedical research. Approximately \$812,000 will be made available for job training assistance programs to teach local residents the necessary skills to advance in the biomedical and biotechnology industries.

5. Neighborhood Business Opportunities

In addition to creating new jobs, the Biomedical Research Complex will also act as a stimulus to spin-off local business opportunities in the Charlestown community. The Yard's End Master Plan creates opportunities to establish retail facilities at prominent locations, such as facing Sixteenth Street, Yard's End Plaza, and First Avenue extension. It is envisioned that neighborhood-based organizations will benefit from such opportunities. Charlestown Neighborhood Council direction and participation during all phases of the various development

projects will assure that Yard's End truly becomes a vital part of the entire Charlestown community.

6. Fiscal Benefits

The economic activity engendered by the development and operation of Buildings B and C of the Biomedical Research Center will have substantial fiscal benefits for the city of Boston and the Commonwealth. The benefits are in several forms. The city will receive increased property tax revenues, while Massachusetts will benefit from income taxes paid by construction workers during the building period and by permanent employees in the completed Research Center.

The city of Boston can expect annual property tax revenues of \$6.3 million from the Proposed Project.

The Commonwealth of Massachusetts also can expect significant benefits from the construction activity and permanent jobs associated with Buildings B and C. First will be the income taxes from the construction jobs to be created by the Proposed Project which will create about 1500 construction jobs, measured as year-long full-time equivalents. These construction workers will pay over \$2.8 million in income taxes to the state based on estimated earnings of approximately \$54 million over the period. Tax revenues are one-time, rather than annual figures.

The Commonwealth will also earn substantial annual income from the permanent jobs to be located in Buildings B and C. The Proposed Project will employ about 1700 new permanent workers earning approximately \$62 million annually. This income will generate about \$3.25 million annually in income taxes for the state.

Figures are given in constant 1991 dollars for ease of comparison with similar figures given for the Charlestown Navy Yard as a whole in the Charlestown Navy Yard Redevelopment DSEIR.

Finally, Massachusetts will benefit from the "multiplier effect" of additional income and sales tax revenue generated by the expansion of the region's overall economic activity stemming from the additional activity at Buildings B and C. This results, for example, from the purchase of goods and services in the region by businesses and institutions located in Buildings B and C. Given the fact that Boston is a prominent center of medicine and biomedical research, that activity should be significant. In addition, the employees of companies in Buildings B and C will use their earnings to pay taxes and purchase goods and services in the surrounding neighborhood, the city, and the region.

7. Meeting the Time Frame of the Biomedical Research Industry

Biomedical firms searching for space or making relocation decisions must be assured of a predictable period of time within which the new space will be made available. An aggressive and pro-active effort to establish the regulatory status of a site is imperative for enhancing the site's marketability to such firms.

Research and Development (R&D) firms can be assured of the time frame involved in the construction of a new facility if permits and approvals are in place. As-of-right" zoning and city and state environmental approvals make it more likely that these heavily courted businesses will choose sites in the Navy Yard instead of sites in other states. Approval of this DEIR is necessary to secure the degree of regulatory status that will expedite development of the entire Biomedical Research Center at Yards End.

C. PROJECT TIMETABLE

Construction of Buildings B and C is planned to occur in two phases, and occupancy of up to 550,000 square feet of the entire Biomedical Research Center (Buildings A, B, and C) will occur during 1993-94 with the balance after January 1, 1995, in accordance with Article 42F of the Boston Zoning Code, Harborpark District, Charlestown Navy Yard.

Buildings B and C -- which are the topic of this DEIR -- represent 812,000 square feet of the entire Biomedical Research Center of 1,100,000 square feet.

D. PROJECT COST AND FINANCING

The estimated cost of Buildings B and C of the Biomedical Research Center is \$250,000,000. It is anticipated that the Project will be privately financed.

E. DESCRIPTION OF THE SURROUNDING CHARLESTOWN NAVY YARD

1. Context of the Charlestown Navy Yard

The Charlestown Navy Yard is located on the eastern edge of Charlestown. It is bounded by the Mystic River to the north, Boston's Inner Harbor to the east, Hoosac Piers and Charlestown's City Square to the south, and the Mystic-Tobin Bridge and Bunker Hill section of Charlestown to the west. The Navy Yard consists of 135 acres of land, 30 of which are dedicated as a National Historical Park and maintained by the National Park Service. The remaining acreage is divided into three areas: the Historic Monument Area, the New Development Area, and Shipyard Park. (See Figure ____).

2. The Yard's End Redevelopment Program

The Yard's End is well suited to accommodate medical research, cultural, and hotel uses. The Yard's End includes approximately 12 acres of predominantly vacant land at the periphery of the Historic Monument Area. The few remaining structures date from periods of construction in the first half of the 20th century, are obsolete, and contribute little historic character to the Navy Yard. Drydock 5, for example, was built during World War II of concrete and sheet steel and is now in derelict condition. Pier 10, to the southern side of Parcel 5, is deteriorated and in unsafe condition. Building 114 was ravaged by fire in 1980 and remains a vacant shell.

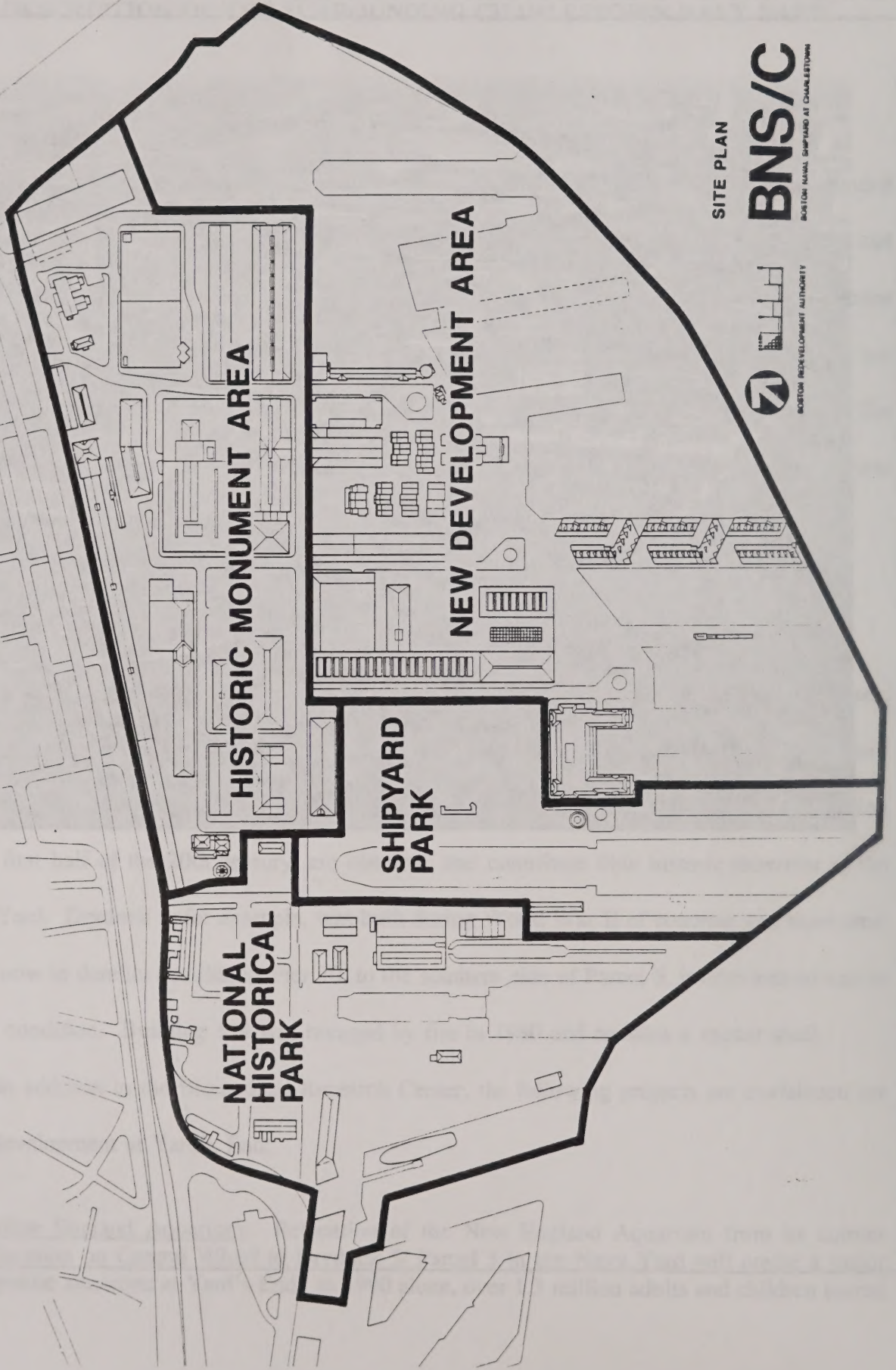
In addition to the Biomedical Research Center, the following projects are envisioned for the redevelopment at Yard's End:

New England Aquarium: Relocation of the New England Aquarium from its current location on Central Wharf to Drydock 5/ Parcel 5 in the Navy Yard will create a major public attraction at Yard's End. In 1990 alone, over 1.3 million adults and children toured

AERIAL VIEW OF CHARLESTOWN NAVY YARD



CHARLESTOWN NAVY YARD DISTRICTS



SITE PLAN

BNS/C
BOSTON NAVAL SHIPYARD AT CHARLESTOWN



the present facility - double its planned capacity. The Drydock 5/Parcel 5 site provides an opportunity to construct an expanded facility that can accommodate the growing number of visitors and maintain the New England Aquarium's world class status. It also ensures continued presence of a pre-eminent waterfront destination on Boston Harbor.

Hotel/Conference Center: A 400-suite hotel and conference center (already approved) is planned for the 98,000 square-foot parcel between the new Aquarium and the award-winning Bricklayers and Laborers affordable housing development. The hotel will meet the demand created by the research center and other Navy Yard uses and assure that Yard's End remains active through the evening hours. Public amenities and activities planned for the hotel/waterfront include a marina, public docks, open-air restaurants, and a water shuttle connection to points throughout the Inner Harbor.

Yard's End Parking: Currently, there are 1,386 off-street parking spaces available for shared parking in the Building 199 parking facility, together with 290 on-street spaces distributed throughout the Navy Yard. Projected future buildout at Yard's End will provide additional parking supply in the following locations:

Approximately 160 spaces on the roof of Building 199 and approximately 140 spaces by re-striping of the existing interior spaces;

- o Approximately 175 spaces will be developed in conjunction with the hotel/conference center at Parcel 4;
- o Approximately 990 spaces will be constructed in three above-grade levels at the base of the Biomedical Research Center at Parcels 6 and 7, in phases coordinated with the phased construction of the research buildings; and
- o The remainder of the shared parking necessary to accommodate the projected total buildout of the Navy Yard will be provided within Building 114 and at the Little Mystic parking lots.

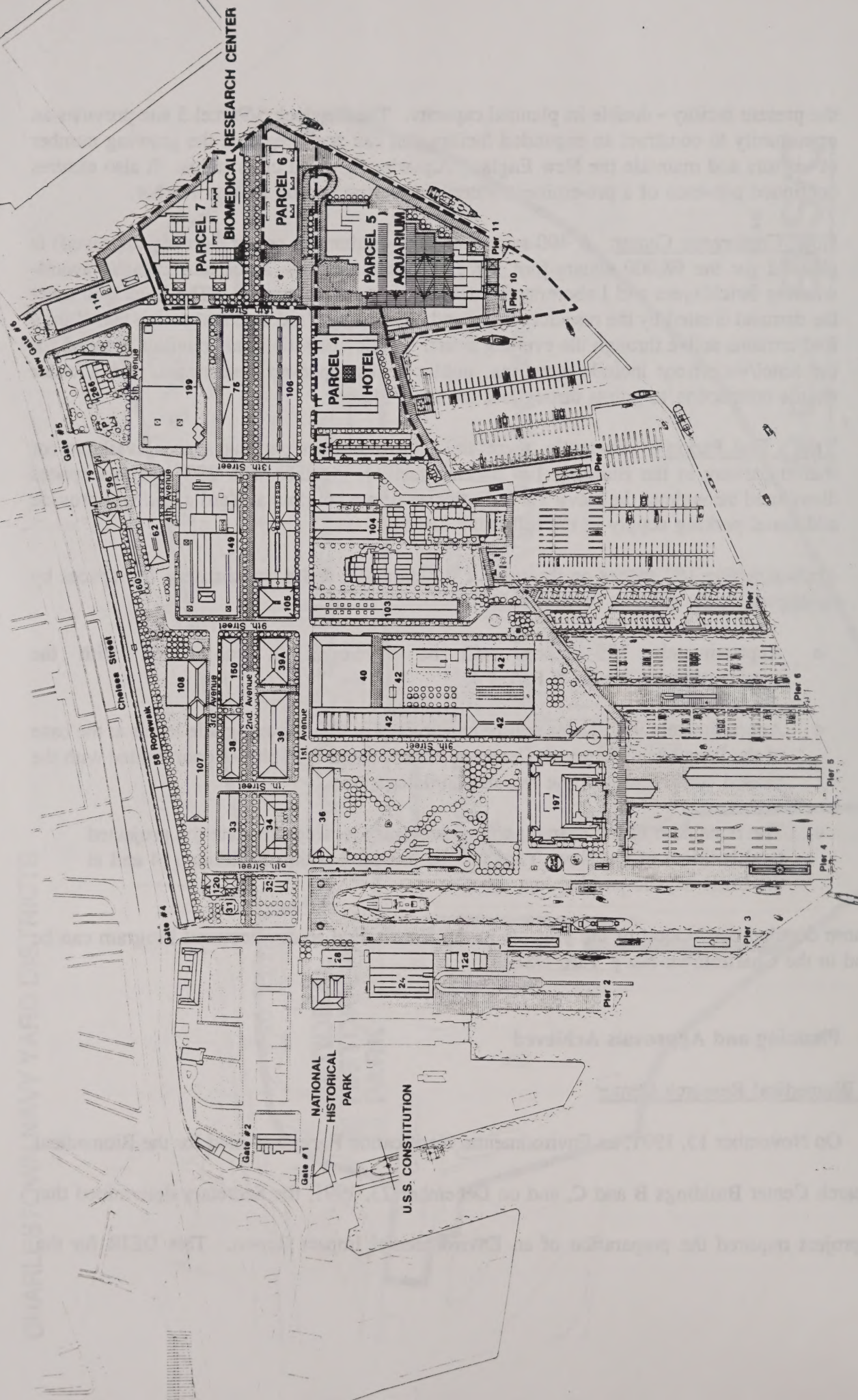
A more detailed description of the projects in the Yard's End Redevelopment Program can be found in the Charlestown Navy Yard DSEIR.

3. Planning and Approvals Achieved

The Biomedical Research Center

On November 15, 1991, an Environmental Notification Form was filed for the Biomedical Research Center Buildings B and C, and on December 23, 1991, the Secretary determined that the project required the preparation of an Environmental Impact Report. This DEIR for the

FIGURE II CHARLESTOWN NAVY YARD APPROVED MASTER PLAN SHOWING YARD'S END DEVELOPMENT



Biomedical Research Center Buildings B and C is the submission required by the Secretary.

The Charlestown Navy Yard

The Biomedical Research Center was also described in a Draft Supplemental Environmental Impact Report (DSEIR) for the Charlestown Navy Yard Redevelopment submitted June 18, 1991, EOE A #02383. The DSEIR described the redevelopment program that was developed in a community-based process leading to a Master Plan for the Navy Yard. This Master Plan was approved by the Boston Redevelopment Authority Board and is in the approved Charlestown Navy Yard Zoning (see Article 42F of the Boston Zoning Code). It is also the program reflected in Boston's Municipal Harbor Plan approved by the Secretary on May 22, 1991.

On August 2, 1991, the Secretary issued a Certificate on the DSEIR which found that the DSEIR adequately and properly complied with MEPA. The FSEIR was submitted on September 3, 1991 and approved by the Secretary on October 17, 1991. In that Certificate, the Secretary reiterated an earlier request that site specific MEPA reviews were required for Buildings 2 and 3 of the Biomedical Research Center.

The environmental regulatory history associated with the Charlestown Navy Yard as a whole dates to 1977 and is described fully in Section 1D of the Charlestown Navy Yard Redevelopment DSEIR.

CHAPTER THREE: ALTERNATIVE TO THE PROPOSED PROJECT

On 12/1/2000, New York

The Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

RECEIVED: The Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

In Board's Meeting on 12/1/2000, the Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

On August 1, 2000, the Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

RECEIVED: The Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

I, [Name], and [Name] are the authors of the proposed project. The Board of Health and Environmental Control was notified on 12/1/2000 that the proposed project was not approved by the Board of Health and Environmental Control on 12/1/2000.

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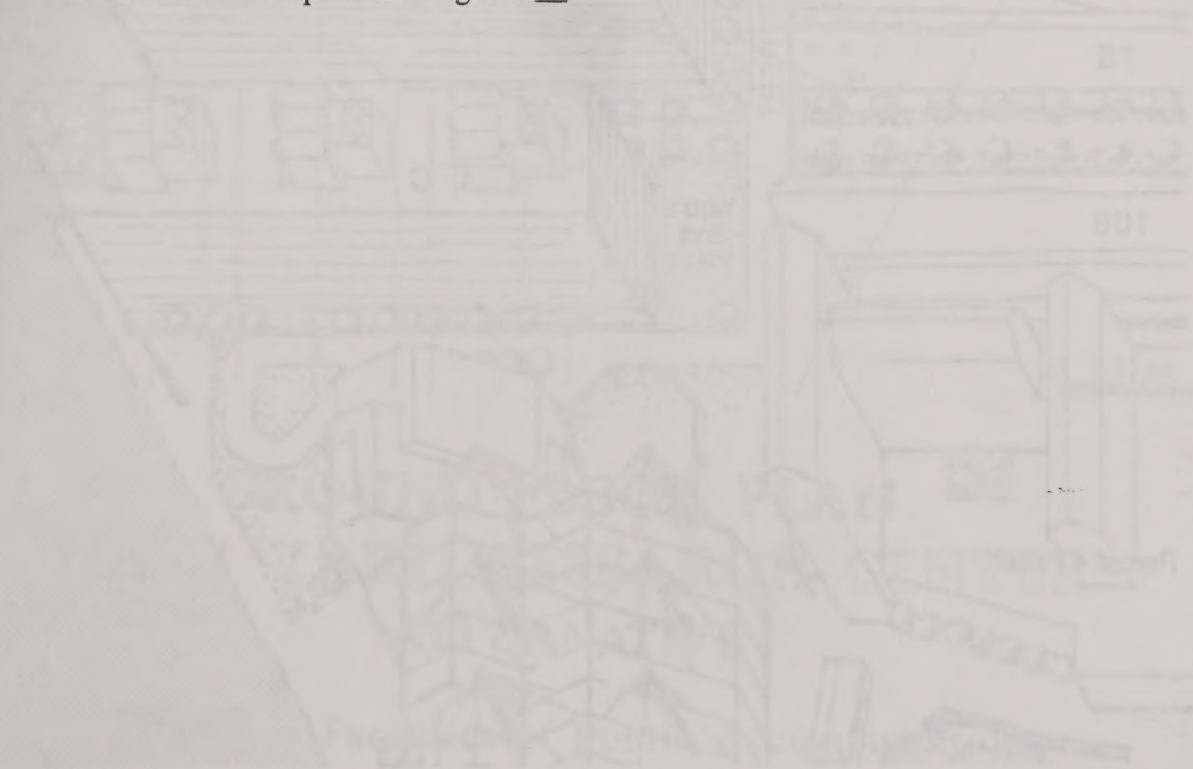
Respectfully,
[Signature]

A. DESCRIPTION OF THE ALTERNATIVE

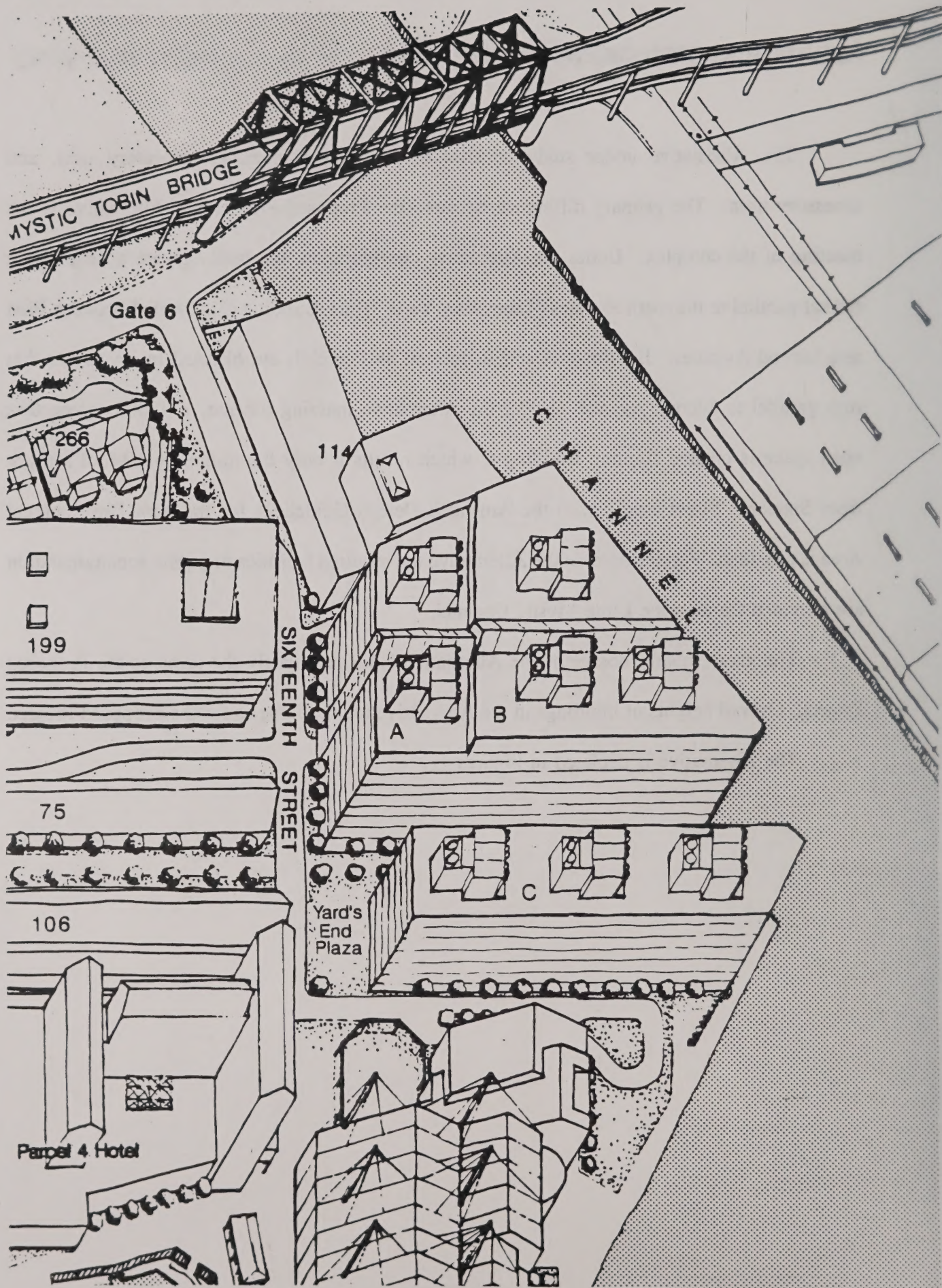
The Alternative under study consists of biomedical research, laboratory uses, and accessory uses. The primary difference between the Proposed Project and Alternative is the massing of the complex. Under the Alternative configuration, the buildings are arranged in a format parallel to the main avenues of the Navy Yard. Thus, Building C is located between First and Second Avenues. Buildings A and B, located on Parcel 7, are bisected by an atrium that runs parallel to Second Avenue. Under the Alternative massing scheme, a 10,000 square foot open space is created fronting Building C which results if only the minimum 60-foot setback from Sixteenth Street specified in the Amended Design Guidelines for the New Development Area is provided. Furthermore, in the Alternative the required facilities of public accommodation are provided fronting the Little Mystic Channel.

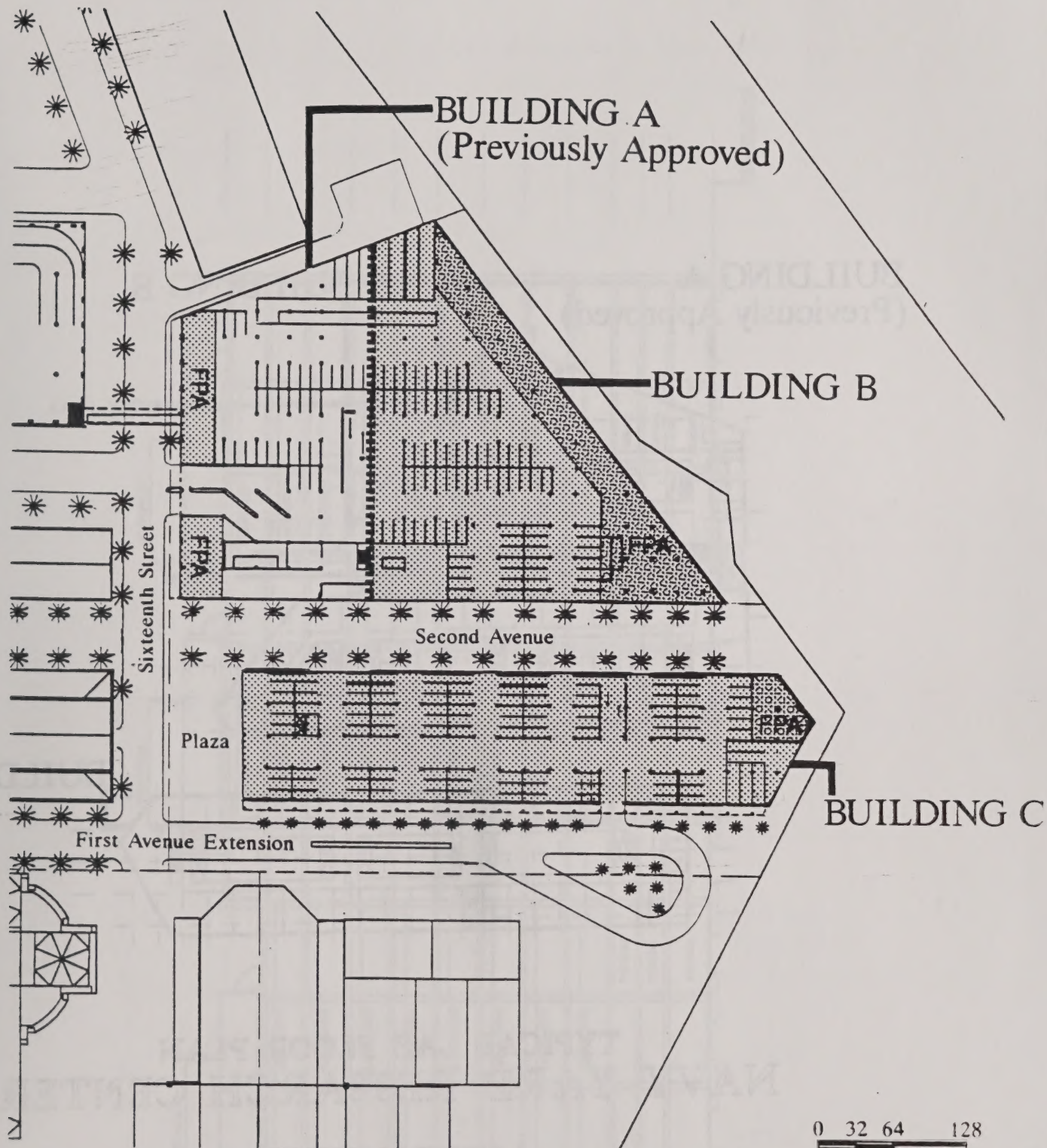
The gross square footage of the Alternative is approximately the same as the Proposed Project. Overall heights of buildings in the Alternative are the same as for the Proposed Project.

The Alternative is depicted in Figures ____.

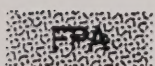


ALTERNATIVE PROJECT





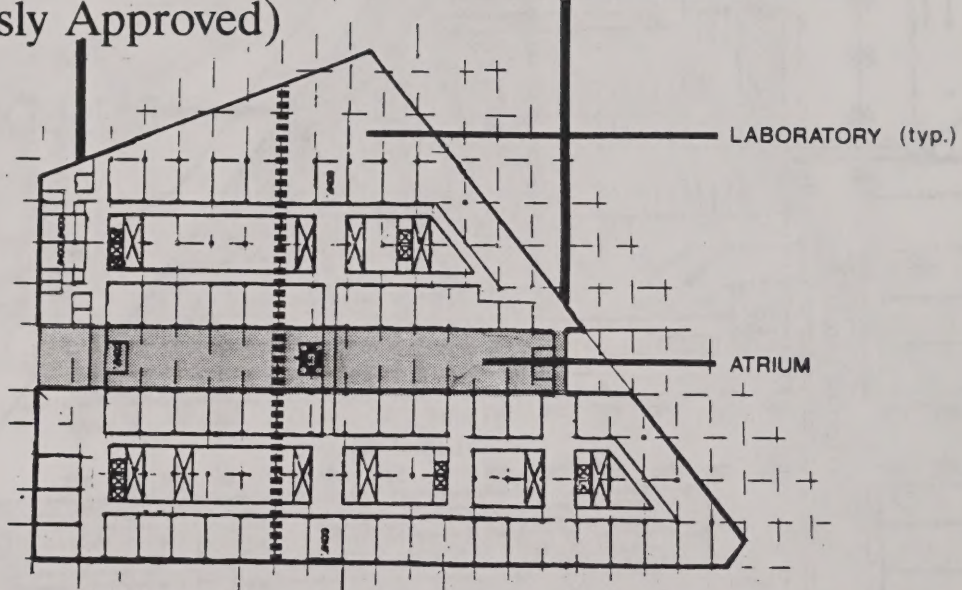
GROUND FLOOR PLAN NAVY YARD RESEARCH CENTER ALTERNATIVE



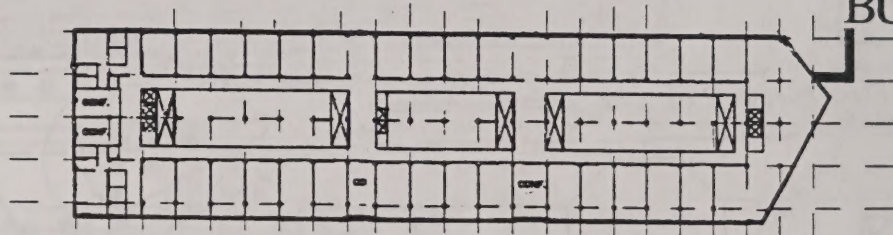
= Facilities of Public Accommodation

BUILDING A
(Previously Approved)

BUILDING B

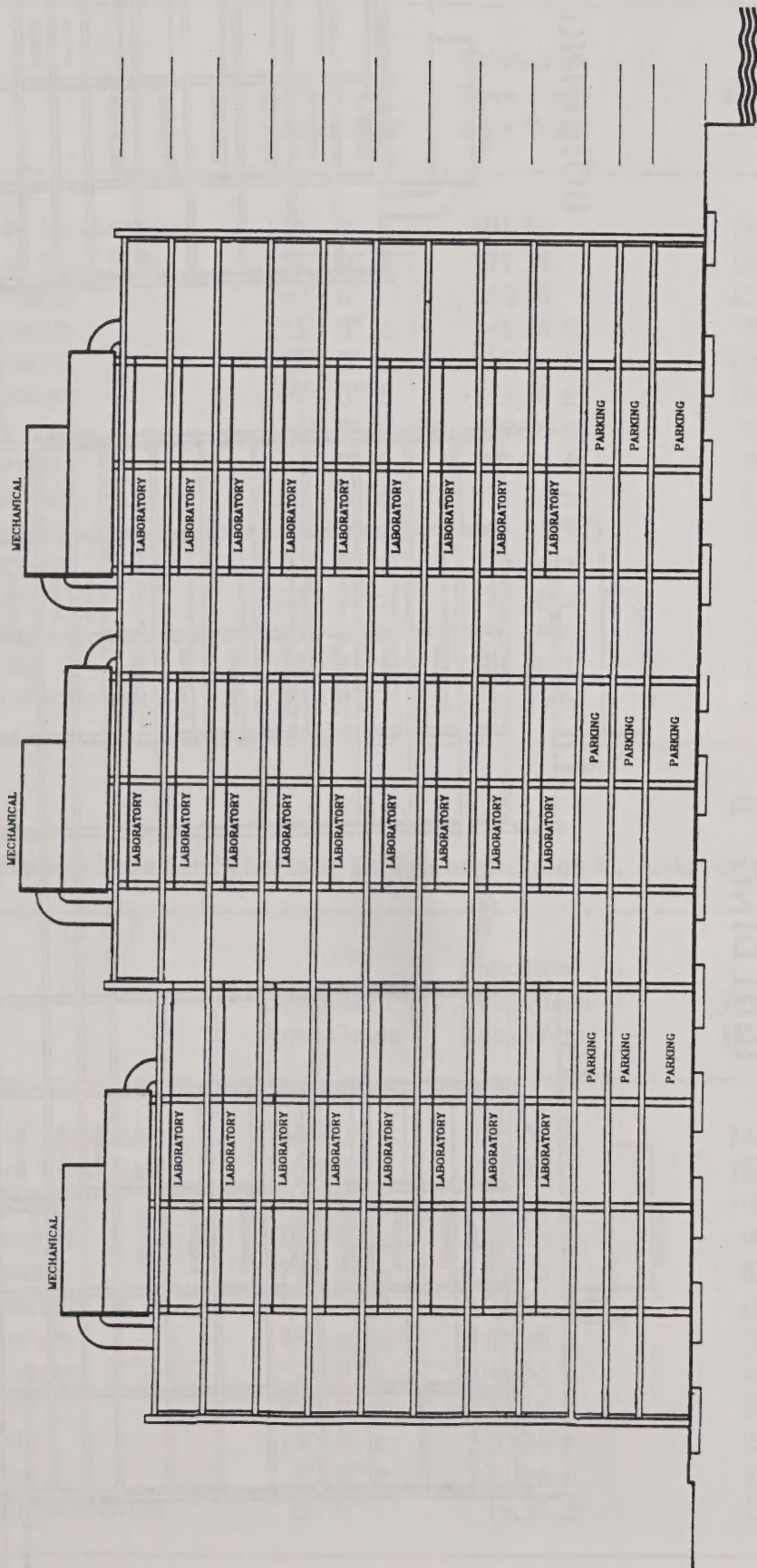


BUILDING C



TYPICAL LAB FLOOR PLAN
NAVY YARD RESEARCH CENTER
ALTERNATIVE

0 32 64 128



BUILDING B

MECHANICAL

LABORATORY

LABORATORY

LABORATORY

LABORATORY

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LABORATORY

MECHANICAL

ATRIUM

BUILDING C

MECHANICAL

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

PARKING

PARKING

PARKING

SECOND AVE.

FIRST

SECTION 2: NORTHWEST - SOUTHEAST NAVY YARD RESEARCH CENTER ALTERNATIVE

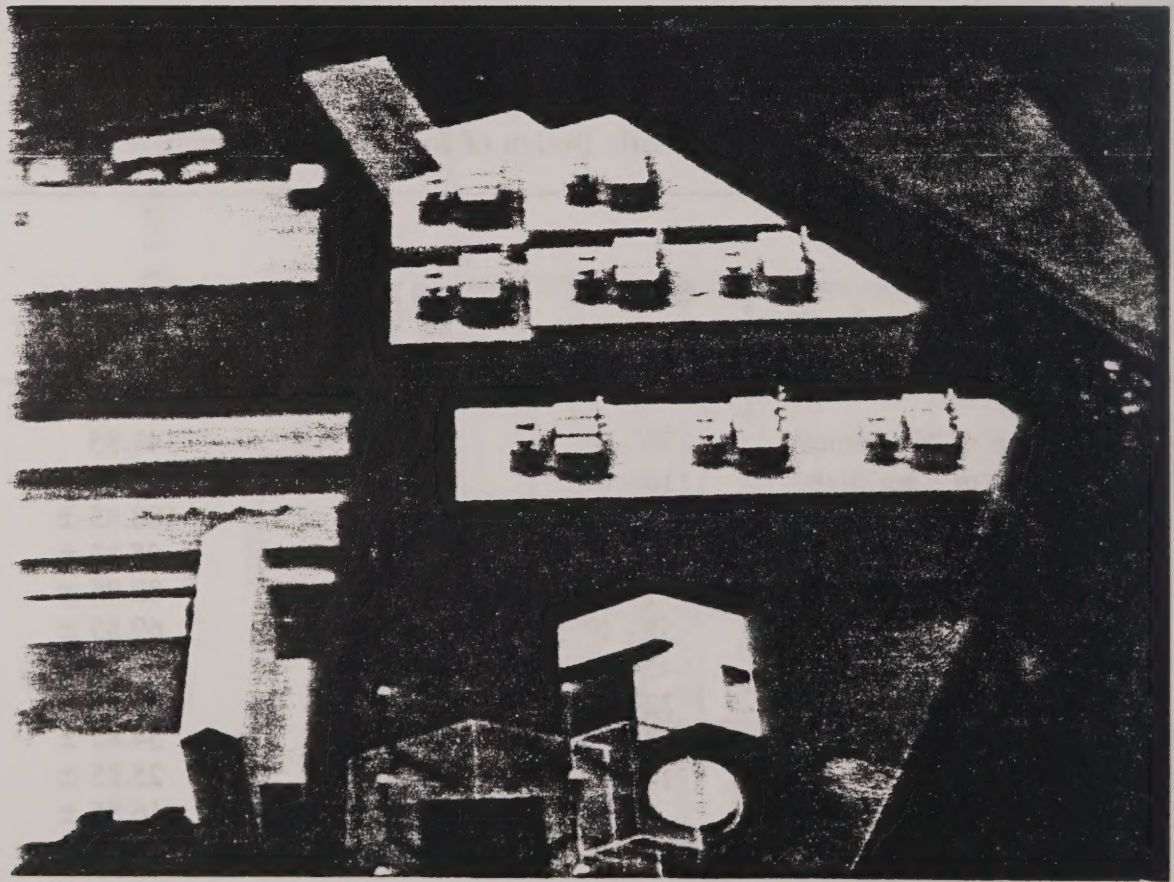
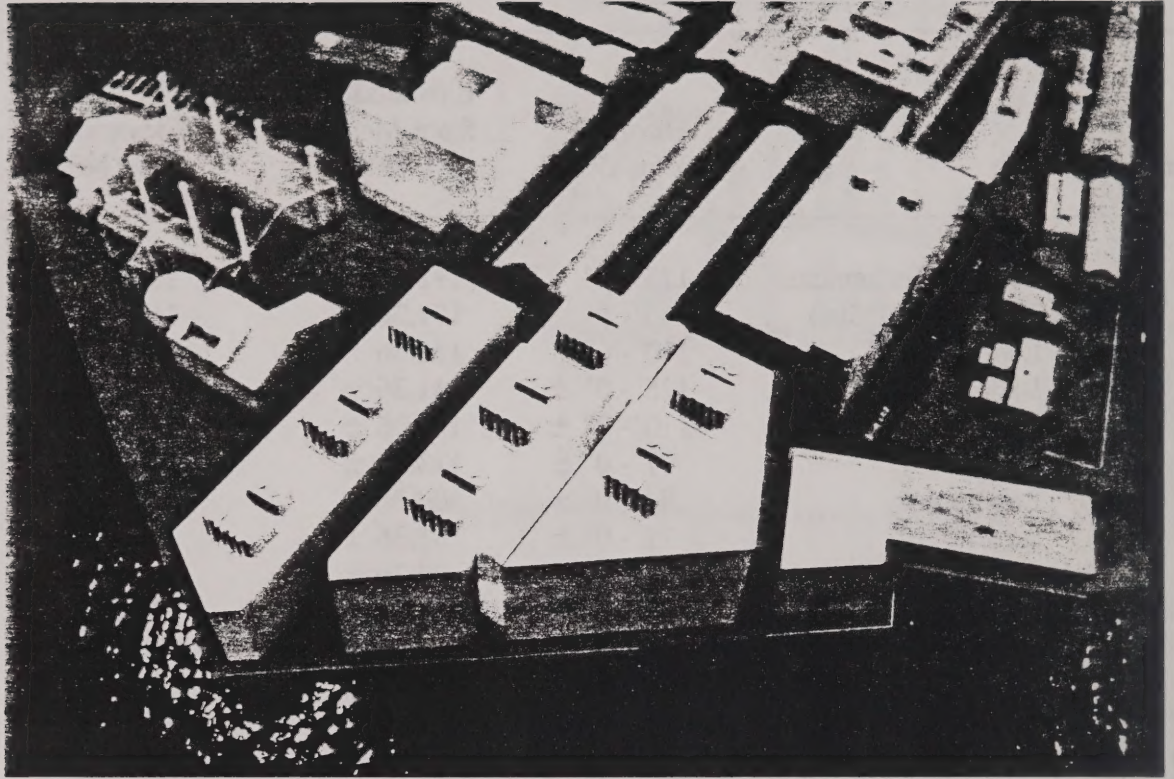
Table __

Elevation Data for Schematic Design of Building B, Alternative

Floor	Use	Elevation from Grade	Elevation from Mean Low Water	Elevation from NGVD
M	Top of Mechanicals	175'- 0"	191.36	186.85
R	Top of Roof Slab	155'- 0"	171.36	166.85
9	Laboratory	140'- 0"	156.36	151.85
8	Laboratory	125'- 0" ±	141.36 ±	136.85 ±
7	Laboratory	110'- 0" ±	126.36 ±	121.85 ±
6	Laboratory	97'- 0" ±	113.36 ±	108.85 ±
5	Laboratory	84'- 0" ±	100.36 ±	95.85 ±
4	Laboratory	71'- 0" ±	87.36 ±	82.85 ±
3	Laboratory	58'- 0" ±	74.36 ±	69.85 ±
2	Laboratory	45'- 0" ±	61.36 ±	56.85 ±
1	Laboratory	32'- 0" ±	48.36 ±	43.85 ±
P3	Parking	23'- 0" ±	39.36 ±	34.85 ±
P2	Parking	14'- 0" ±	30.36 ±	25.85 ±
P1	Parking	5'- 0" ±	21.36 ±	16.85 ±
G	Retail/Harborwalk	0'- 0"	16.36 ±	11.85 ±

Elevation Data for Schematic Design of Building C, Alternative

Floor	Use	Elevation from Grade	Elevation from Mean Low Water	Elevation from NGVD
M	Top of Mechanicals	130'- 0"	146.36	141.85
R	Top of Roof Slab	110'- 0"	126.36	121.85
6	Laboratory	97'- 0" ±	113.36 ±	108.85 ±
5	Laboratory	84'- 0" ±	100.36 ±	95.85 ±
4	Laboratory	71'- 0" ±	87.36 ±	82.85 ±
3	Laboratory	58'- 0" ±	74.36 ±	69.85 ±
2	Laboratory	45'- 0" ±	61.36 ±	56.85 ±
1	Laboratory	32'- 0" ±	48.36 ±	43.85 ±
P3	Parking	23'- 0" ±	39.36 ±	34.85 ±
P2	Parking	14'- 0" ±	30.36 ±	25.85 ±
P1	Parking	5'- 0" ±	21.36 ±	16.85 ±
G	Retail/Harborwalk	0'- 0"	16.36 ±	11.85 ±



B. ALTERNATIVES CONSIDERED IN THE CHAPTER 106 PROCESS

The entire Charlestown Navy Yard is listed in the National Register of Historic Places as a National Historic Landmark. Its transfer out of federal ownership in 1978 involved a review pursuant to the National Historic Preservation Act of 1966. The Act requires a review of any proposed federal action to insure that the effect of such action on properties listed in the National Register is minimized or mitigated. This is referred to as the Section 106 review process.

The New Development Area

In 1978, the Section 106 process for the New Development Area culminated with the execution of a Memorandum of Agreement (MOA) between the BRA, the President's Advisory Council on Historic Preservation (Advisory Council), the Massachusetts Historical Commission (MHC), and the U.S. General Services Administration (GSA) for the New Development Area. The MOA stipulated that redevelopment would be carried out in accordance with specific Design Guidelines that established height, use and other controls for development sites in the New Development Area.

Changes in the Boston Economy since 1978

While a great deal of redevelopment was accomplished within the framework of these agreements, in the intervening years much has changed, particularly with respect to the economy of Boston and the New England region.

The 1978 plans envisioned a significant component of light industrial and "incubator" space, in part to ameliorate the elimination of jobs resulting from the Navy Yard's closure. Since

that time, regional economic forces have severely affected the viability of these uses in core locations such as the Navy Yard.

However, biomedical research has emerged as a new growth economy, and it provides a broad range of employment opportunities that can replace the decrease in manufacturing and light industry in this area. The conversion of Building #149 into the Massachusetts General Hospital Research Center is an excellent example of the suitability of the Navy Yard for the biomedical industry, and of its building stock, for research uses.

Amending the 1978 Design Guidelines

The Charlestown Navy Yard is well suited to accommodate additional biomedical research uses. Large, vacant sites at Parcels 6 and 7 in the New Development Area make it possible to balance the large floorplates required by the biomedical industry with building height and mass that is compatible with the existing 20th-century warehouse stock in the Historic Monument Area, such as Buildings #149 and #199. Accordingly, as part of the Master Plan for the Redevelopment of the Charlestown Navy Yard, Parcels 6 and 7 were identified as a location for a Biomedical Research Center. To permit the construction of the Biomedical Research Center, it was necessary to amend the Design Guidelines governing development in the New Development Area, adopted pursuant to the 1978 MOA by which the Navy Yard was initially transferred to the BRA. This required an evaluation of building height and massing options in order to minimize the impact of new construction on historic structures in the Historic Monument Area. The process resulted in agreement on an *Amendment to Design Guidelines for the New Development Area, Charlestown Navy Yard*, dated July 19, 1991, approved by the Massachusetts State Historic Preservation Officer and the Advisory Council on Historic Preservation (the

State Historic Preservation Officer and the Advisory Council on Historic Preservation (the Amended Design Guidelines).

Evaluation of the Master Plan

In order to minimize and mitigate potential impacts of the construction in the New Development Area on historic resources and reach agreement on the amendment of the Design Guidelines, an evaluation of prudent and feasible alternatives was undertaken. A methodology was developed to study differences between prior approved schemes and the proposed new Master Plan redevelopment. The Charlestown Navy Yard Redevelopment DSEIR, Appendix 7 contains this study.

Certain aspects of this analysis were critical to the site planning decisions regarding the Biomedical Research Center, relevant portions of which are excerpted here. Table __ Alternative Impacts Analysis, Yard's End Master Plan, evaluates the impacts of four sets of actions. The primary variable was whether or not Building 75 would remain in its present location or be moved to a location on Parcel 6. The relocation of Building 75 was thought to further the site planning for the Navy Yard in extending the historic street grid pattern and building fabric of the Historic Monument Area through Yard's End. However, there were drawbacks to relocating Building 75, such as altering the setting of an historic building, which are discussed fully in Table __.

The preferred outcome, shown on Table __, Preferred Alternative, Yard's End Master Plan, was for Building 75 to remain in situ. This decision underlies the site planning and massing for the Biomedical Research Center.

Height and Massing of the Biomedical Research Center

The massing of the Biomedical Research Center was developed through the process outlined above over the course of a one and one-half year review with historic preservation officials. The original massing of the Biomedical Research Center, which closely mirrors the Alternative under study in this DEIR, envisioned three parallel structures arranged along 16th Street, a configuration chosen to carry out the same goals as the relocation of Building 75, i.e., extending the Historic Monument Area grid pattern into the Yard's End area. However, concerns were raised that this massing scheme would create an overwhelming repetitive presence adjoining the Historic Monument Area. In response to this concern, the Proposed Project massing scheme was developed and the heights of the three buildings scaled back. Heights originally proposed for Buildings A, B, and C at 155 feet, 155 feet, and 125 feet, have been scaled back to heights of 140 feet, 155 feet, and 110 feet, respectively.

The Proposed Project applies these new heights to a redesign of the B and C buildings to produce a more positive environment at Yard's End. The heights, together with the revised L-shaped massing, shield the 155-foot tall Building B from view by placing it behind the 140-foot tall Building A along Sixteenth Street. Thus, the massing of the new construction steps down to the height of the nearby historic Building #199 which is 110 feet in height. When viewed by the pedestrian from the edge of the Historic Monument Transfer area or from the edge of Parcel 7, Building B is far less intrusive under the Proposed Project height and massing. This was ascertained by performing a visual impact analysis by positioning sticks representing lines of sight on a 1 inch = 40 feet scale model of the Charlestown Navy Yard. This analysis confirmed that, from most vantage points within the Historic Monument Area, the proposed massing would serve to minimize apparent height to 140 feet on Parcel 7.

The new construction proposed for Building C on Parcel 6 is at a height of 110 feet which is unchanged from the height approved for this parcel in 1978. However, in keeping with the requirements of the Amended Design Guidelines, a minimum 60-foot building setback from Sixteenth Street is incorporated in order to mitigate the visual impact on the adjoining Building #106. Under the Proposed massing, an even greater setback is proposed allowing for more open space and less shadow impact.

The Biomedical Research Center has a relatively simple, straightforward massing in keeping with surrounding industrial loft structures. This massing creates a compatible relationship between the New Development Area and the Historic Monument Area.

ALTERNATIVE IMPACTS ANALYSIS
YARD'S END MASTER PLAN
CHARLESTOWN NAVY YARD
BOSTON REDEVELOPMENT AUTHORITY

POTENTIAL IMPACTS (Mitigation to be Determined)

PROPOSED ACTION(S)	Transportation Parking	Historic Resources	Open Space	Overall Character	Feasibility & Economic Implications
2 A Building 75 remains in situ with office reuse. 1150 parking spaces on Parcels 6 & 7. 170 Parking spaces on roof of Building 199. Building 114 (without ell) remains in situ with office/marina reuse.	• Inefficient parking floor plates. • Yard's End parking supply spread between 1st and 5th Avenues.	• Penetration of Building 199 roof. • Office reuse of Building 75 intrudes on present character. • Office/marina reuse of Building 114 compatible with present character. • Conflict between 2nd Avenue view corridor and parking floor plates.	• Surrounding streetwalls create urban character for Parcel 6 open space. • Waterfront pedestrian way separated from 16th Street by contiguous building massing on Parcels 6 & 7. • Vehicular turnarounds at end of 1st Avenue interfere with pedestrian access.	• 155' height on Parcel 7. • 125' height on Parcel 6. • Three above grade levels of parking front on pedestrian areas along 16th Street and 1st Avenue.	• Floor to floor heights of 15' to accommodate biomedical research uses. • Questionable feasibility of office reuse for Building 75 due to anticipated rehabilitation costs. • Questionable feasibility of office/marina reuse for Building 114 due to anticipated rehabilitation costs.
2 B Building 75 remains in situ with office reuse. Partial or total demolition of remainder of Building 114 and replacement with stepped parking structure. 1320 parking spaces at Building 114 site and Parcel 7 extend to 2nd Avenue.	• Yard's End parking supply spread from Chelsea Street to 2nd Avenue. • Least efficient parking floor plates.	• Alteration of Building 114, with potential for retaining 16th Street facade. • Office reuse of Building 75 intrudes on present character. • 2nd Avenue view corridor extended into Yard's End through atrium between two research buildings on Parcels 6 and 7.	• Urban character for open space at Parcel 6 relieved with view corridor extending through 2nd Avenue. • Waterfront pedestrian way separated from 16th Street by contiguous building massing from Chelsea Street to 2nd Avenue. • Vehicular turnarounds at end of 1st Avenue interfere with pedestrian access.	• 125' height average across Parcels 6 & 7. • 110' height at rear of Building 114 site.	• Questionable feasibility of office reuse for Building 75 due to anticipated rehabilitation costs.

PROPOSED ACTION(S) POTENTIAL IMPACTS (Mitigation to be Determined)

	Transportation Parking	Historic Resources	Open Space	Overall Character	Feasibility & Economic Implications
2C Building 75 moved to Parcel 6.	• Yard's End parking supply above 3rd Avenue consolidated in most efficient floor plates.	• Altered setting for Building 75.	• Diminished massing on Parcel 6 results in less enclosed open space character.	• 155' height on Parcel 7.	• Floor to floor heights of 15' to accommodate biomedical research uses.
1100 car parking garage on Building 75 site.		• Retail reuse of Building 75 compatible with present character.		• 125' height on Building 75 site.	• Questionable feasibility of office/marina reuse for Building 114 due to anticipated rehabilitation costs.
220 car parking on Parcel 7 bounded above 3rd Avenue.		• Full-height addition to Building 199 west facade.	• Potential connections to waterfront open space along 1st, 2nd and 3rd Avenues from 16th Street.	• 35' high Building 75 on Parcel 6.	
Building 114 remains in situ with office/marina reuse.		• Increased massing within Historic Monument Area adjoining Building 106. • Office/marina reuse of Building 114 compatible with present character.	• Consolidated turnaround at end of 1st Avenue lessens interference with pedestrian access.	• Historic Monument Area grid pattern extended into Yard's End.	• Incremental cost of Building 75 relocation estimated at \$500,000, with potential offset from reduced rehabilitation cost associated with retail rather than office reuse.
		• 2nd Avenue view corridor extended into Yard's End along pedestrian way between relocated Building 75 and new construction on Parcel 7.			

PROPOSED ACTION(S) POTENTIAL IMPACTS (Mitigation to be Determined)

PROPOSED ACTION(S)	Transportation Parking	Historic Resources	Open Space	Overall Character	Feasibility & Economic Implications
2 D Building 75 moved to Parcel 6.	• Yards End parking supply consolidated in relatively efficient floor plates.	• Altered setting for Building 75.	• Diminished massing on Parcel 6 results in less enclosed open space character.	• 135' average height on Parcel 7 and at rear of Building 114 site, stepping down to 48' (existing massing) along 16th street.	• Incremental cost of Building 75 relocation estimated at \$500,000, with potential offset from reduced rehabilitation cost associated with retail rather than office reuse.
650 car parking garage on Building 75 site.		• Retail reuse for Building 75 compatible with present character.	• Potential connections to waterfront open space along 1st, 2nd and 3rd Avenues from 16th Street.		
500 car parking on Parcel 7 and Building 114 site.		• New construction in Historic Monument Area provides transitional height of 75' - 90' adjoining Buildings 106 and 199.		• 75' - 90' height on Building 75 site.	• Floor to floor heights of 15' to accommodate biomedical research uses.
170 parking spaces on roof of building 199.		• Alteration of Building 114 with potential for retaining 16th Street facade.	• Consolidated turnaround at end of 1st Avenue lessens interference with pedestrian access.	• 35' height Building 75 on Parcel 6.	
		• Penetration of Building 199 roof.		• Historic Monument Area grid pattern extended into Yard's End.	
		• 2nd Avenue view corridor extended into Yard's End along pedestrian way between relocated Building 75 and new construction on Parcel 7.			

PREFERRED ALTERNATIVE

YARD'S END MASTER PLAN

CHARLESTOWN NAVY YARD
BOSTON REDEVELOPMENT AUTHORITY

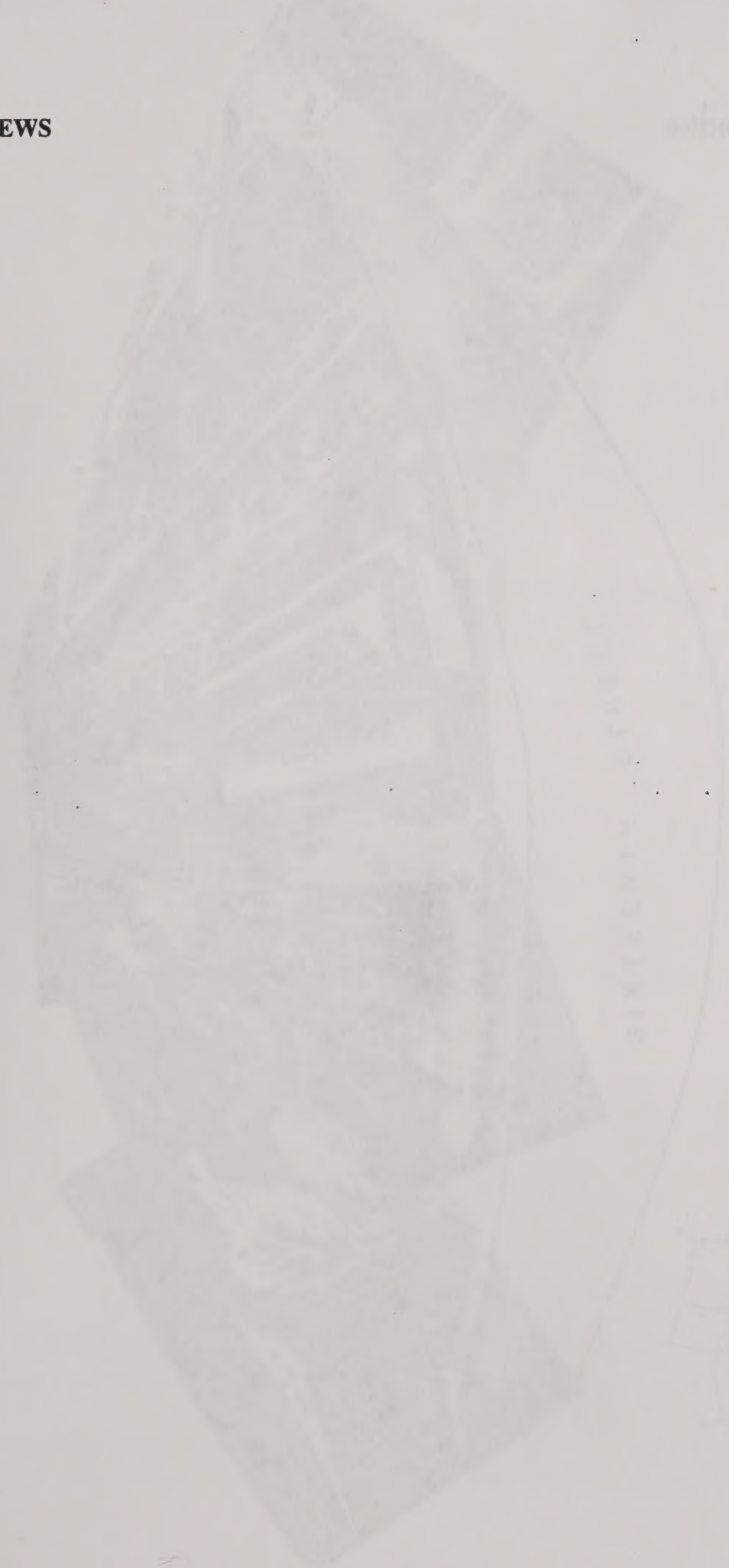
POTENTIAL IMPACTS (Mitigation to be Determined)

PROPOSED ACTION(S)	Transportation Parking	Historic Resources	Open Space	Overall Character	Feasibility & Economic Implications
2 B 1 Building 75 remains in situ with office reuse.	• Dispersed parking supply located more remotely from Gate 5 and Gate 6 but could directly adjoin new Aquarium II built on Parcel 6.	• Office reuse of Building 75 intrudes on present character.	• Urban character for open space at Parcel 6.	• 125' height average across Parcel 6 and 7, with potential for stepped massing to moderate visual impact by lowering height on Parcel 6 and increasing height on Parcel 7.	• Questionable feasibility of office reuses for Building 75 due to anticipated rehabilitation costs.
Addition to rear of Building 114 stepped back from 16th Street facade.		• Alteration of Building 114 character within portion which sustained fire damage.	• Consolidated vehicular turnaround at end of 1st Avenue accommodated through scoop in Parcel 6 massing, thereby lessening interference with pedestrian access to waterfront open space.		
170 parking spaces on roof of Building 199.		• 2nd Avenue view corridor extended into Yards End.			
Remainder of parking provided within Building 114, on Parcel 7 and/or Parcel 6.				• 110' height at rear of Building 114, stepping down to existing facade along 16th Street.	

CHAPTER FOUR: ENVIRONMENTAL ISSUES

Environmental Issue	Environmental Impact	Environmental Policy	Environmental Action	Environmental Outcome
1. Air Quality 2. Water Quality 3. Land Use 4. Noise 5. Visual Quality 6. Cultural Resources 7. Biological Resources 8. Cumulative Impacts	1. Air Quality 2. Water Quality 3. Land Use 4. Noise 5. Visual Quality 6. Cultural Resources 7. Biological Resources 8. Cumulative Impacts	1. Air Quality 2. Water Quality 3. Land Use 4. Noise 5. Visual Quality 6. Cultural Resources 7. Biological Resources 8. Cumulative Impacts	1. Air Quality 2. Water Quality 3. Land Use 4. Noise 5. Visual Quality 6. Cultural Resources 7. Biological Resources 8. Cumulative Impacts	1. Air Quality 2. Water Quality 3. Land Use 4. Noise 5. Visual Quality 6. Cultural Resources 7. Biological Resources 8. Cumulative Impacts

A. VIEWS



1. Introduction

This document contains the results of the study of the project and the conclusions drawn from the analysis of the data. The study was conducted in accordance with the methodology described in the previous section. The results are presented in the following sections.

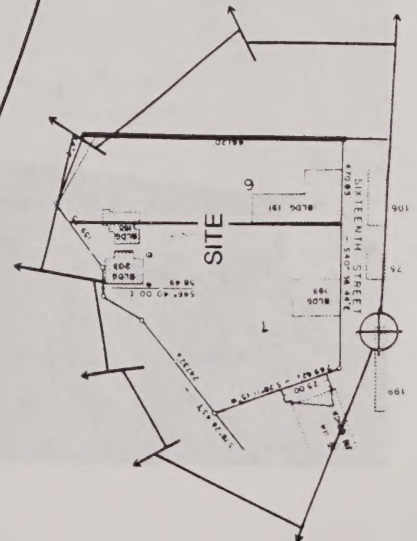


1. Introduction

FIGURE 17 PANORAMIC SITE VIEW



SIXTEENTH STREET



This composite panoramic view of Parcels 6 and 7 begins at Building 114 on the left (northwest) and ends at Drydock #5 and Pier #10 on the far right (southeast.) The photos were taken in February 1992 with a 35mm lens from the southeast corner of the rooftop of Building 199 (see diagram.)

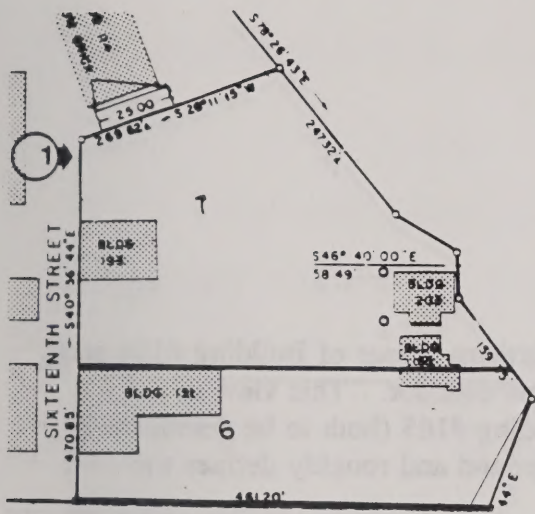
2. Photomontage of Views across Parcels 6 and 7

This Photomontage is comprised of a series of views across Parcels 6 and 7 taken progressively along Sixteenth Street moving toward First Avenue.

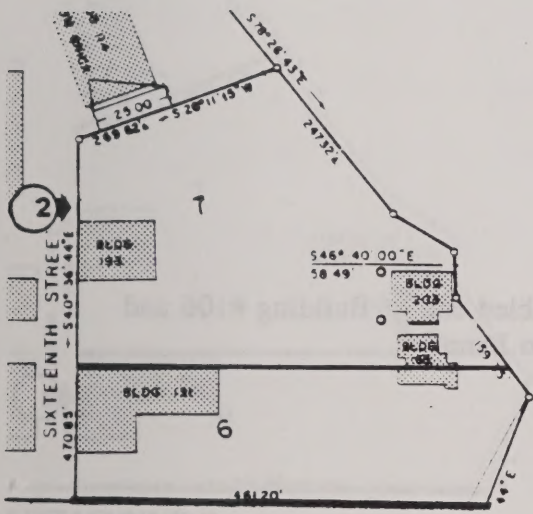
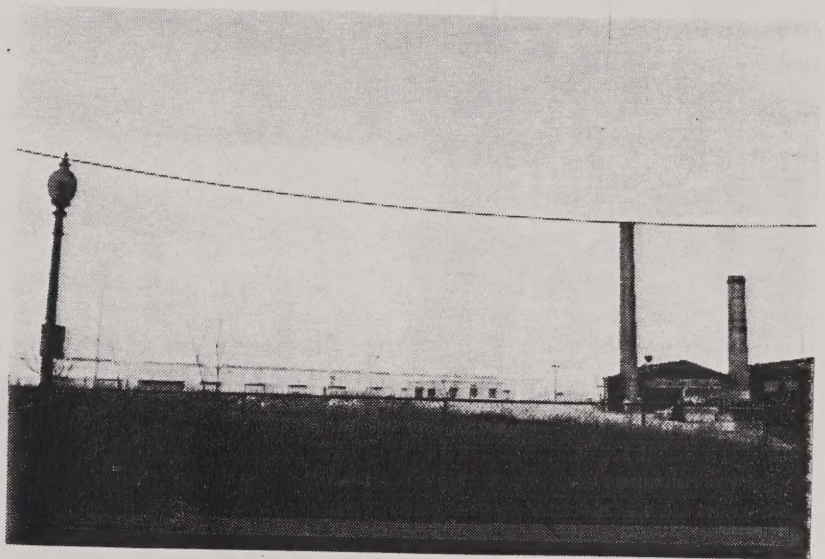
Viewpoint 1. Taken from Sixteenth Street looking northeast across the Parcel 7 site. The Moran Container Terminal Mystic Pier #1 Building is visible in the distance. Building #203 and its smokestacks (to be demolished) are visible on the far right. The foreground fencing is temporary.

Viewpoint 2. Taken from Sixteenth Street opposite the corner of Building #199 and looking northeast across the Parcel 7 site. The Moran Container Terminal Mystic Pier #1 Building remains visible. Building #193 (to be demolished) enters the foreground on the right. The taller smokestack remains visible.

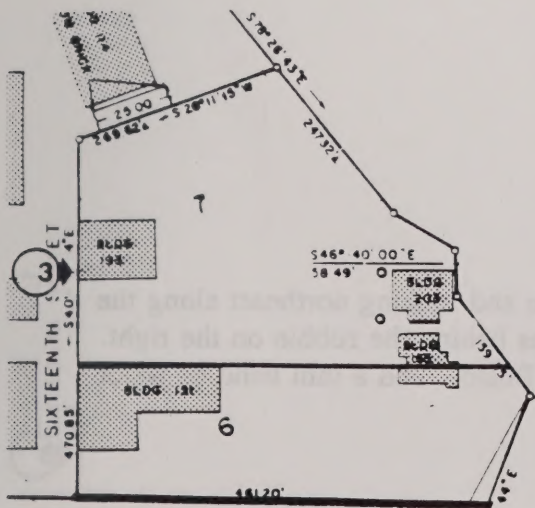
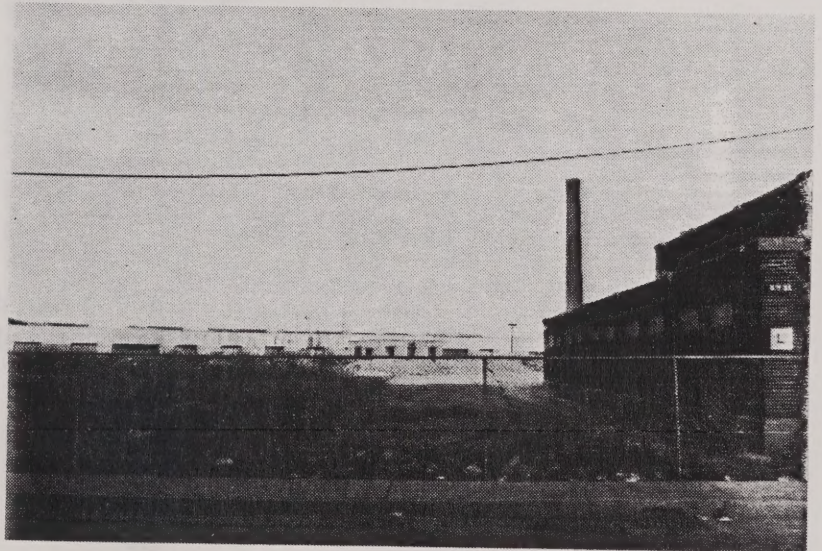
Viewpoint 3. Taken from Sixteenth Street opposite the northern corner of Building #75 and looking northeast at Parcel 7. Building #193 and a shed addition take up most of the view. The taller smokestack and a portion of the site are visible.



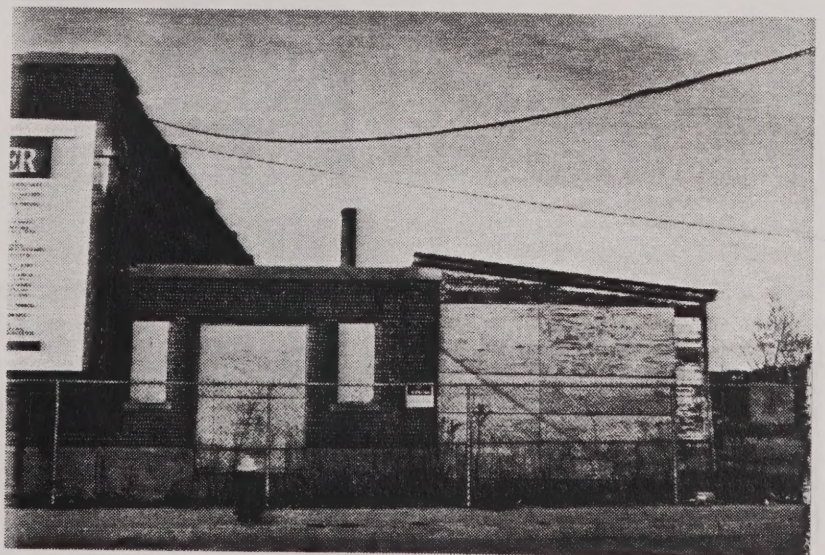
VIEWPOINT 1



VIEWPOINT 2



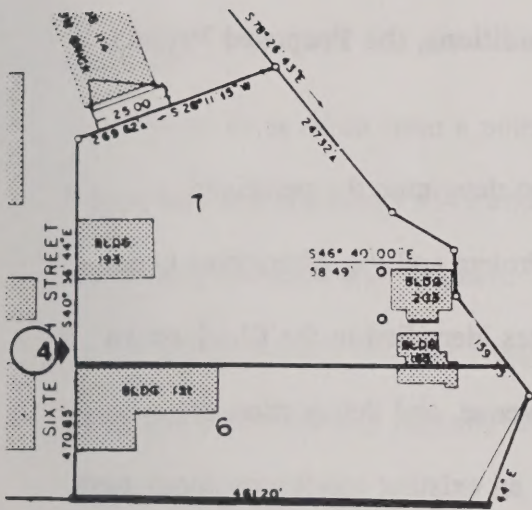
VIEWPOINT 3



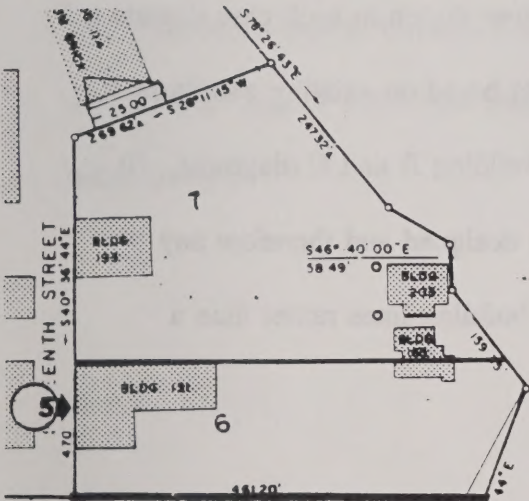
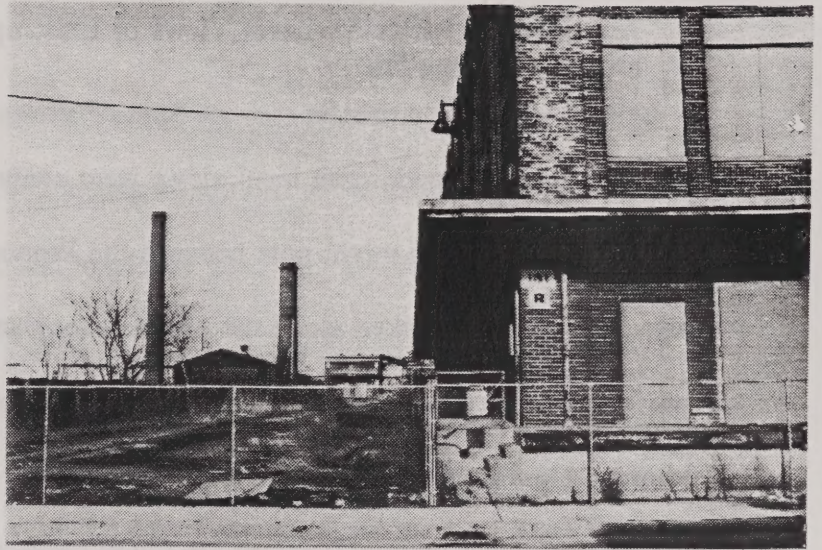
Viewpoint 4. Taken from Sixteenth Street opposite the northern corner of Building #106 and looking northeast along one side of the Second Avenue view corridor. This view is terminated by Building #203 and its smokestacks and Building #165 (both to be demolished). Building #131 (also to be demolished) is in the right foreground and roughly defines the boundary between Parcels 7 and 6.

Viewpoint 5. Taken from Sixteenth Street opposite the gabled end of Building #106 and looking northeast directly at the facade of Building #131 on Parcel 6.

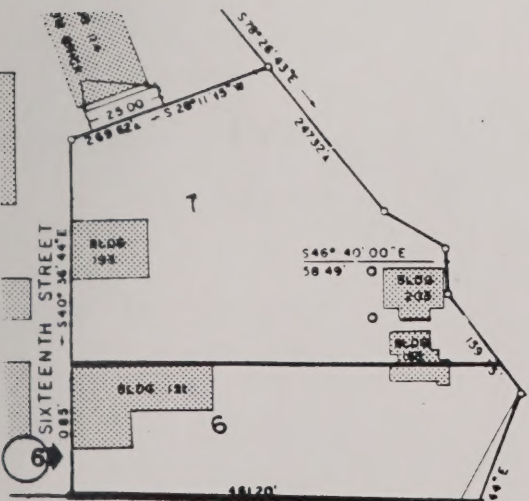
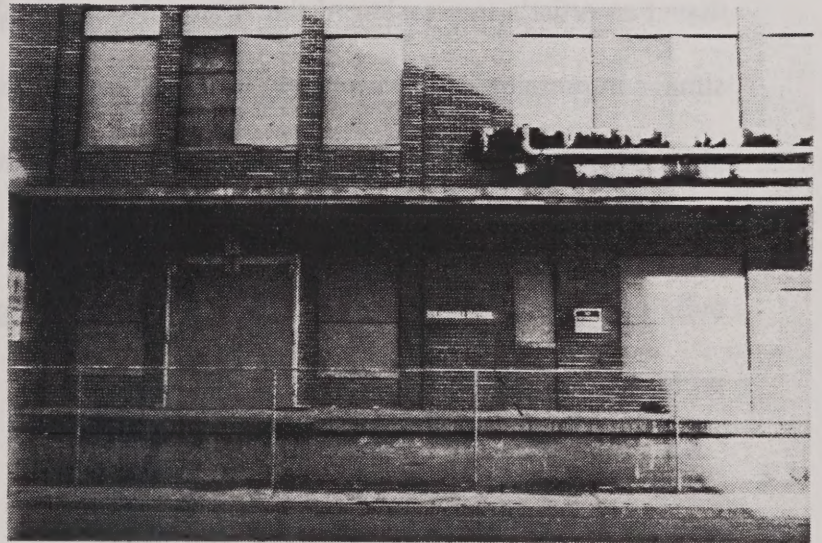
Viewpoint 6. Taken From Sixteenth Street at First Avenue and looking northeast along the First Avenue view corridor on Parcel 6. Dry Dock 5 begins behind the rubble on the right. In the distance are the Chelsea skyline, apartments in East Boston, and a thin band of water marking the confluence of the Mystic and Chelsea rivers.



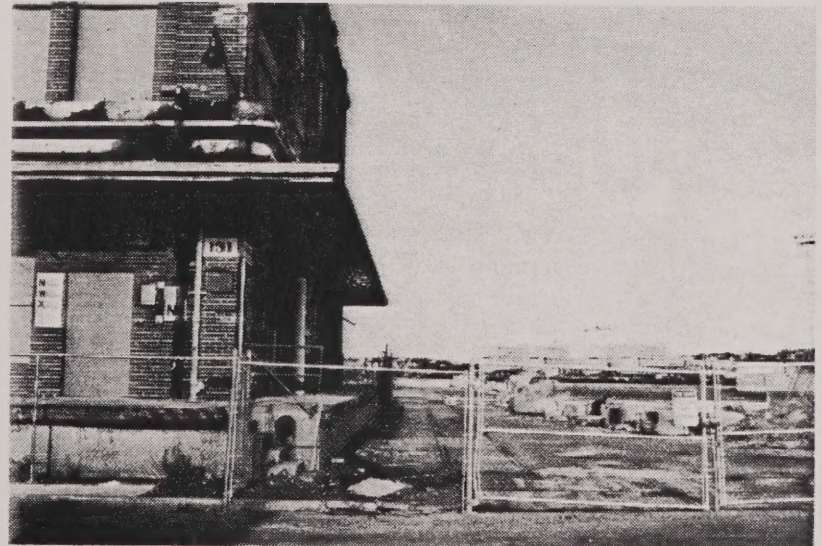
VIEWPOINT 4



VIEWPOINT 5



VIEWPOINT 6



3. Analysis of Pedestrian Level Views of Existing Conditions, the Proposed Project, and the Alternative

The following pedestrian level views were analyzed to determine the perceived differences a pedestrian might note between the Proposed Project and the Alternative under study. The views are taken along the major pedestrian routes identified in the Charlestown Navy Yard Master Plan, including Second Avenue, First Avenue, and that portion of Harborwalk along the Little Mystic Channel. In each case, an existing conditions photograph and a location identification diagram are found opposite two sketches. The upper sketches depict an artist's impression of the Alternative, while the lower sketch in each case depicts a similar impression of the Proposed Project. Each sketch was based on existing condition photographs and the massing layouts of the pre-schematic Building B and C diagrams. (It should be noted that Buildings B and C have not been fully designed and therefore any building details shown have been chosen simply to suggest building lines rather than a preferred design treatment.)

View #1

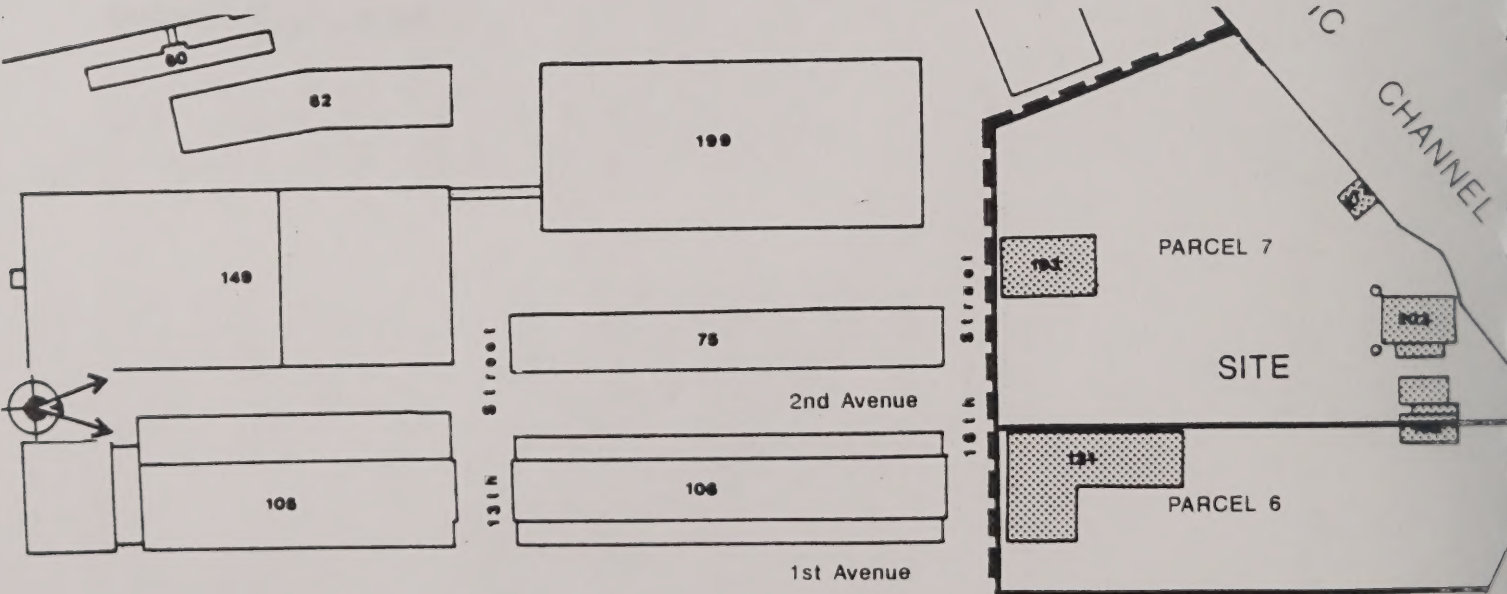
View #1 is taken from a point along the Second Avenue pedestrian mall, near Ninth Street, between Buildings #149 and #105. Existing conditions show temporary improvements along the pedestrian way (asphalt, lights, and hurricane fencing). Building #149 is occupied by the Massachusetts General Hospital Research Center. Building #105, the Chain Forge Shop and Power House, remains unimproved at this time. The smokestacks on Parcel 7 are visible in the distance.

The sketches depict a continuation of the Second Avenue pedestrian mall improvements which currently extend through Ninth Street. In the distance, Building A on Parcel 7 is visible; Buildings B and C are obscured by buildings in front of them (A and 105 respectively).

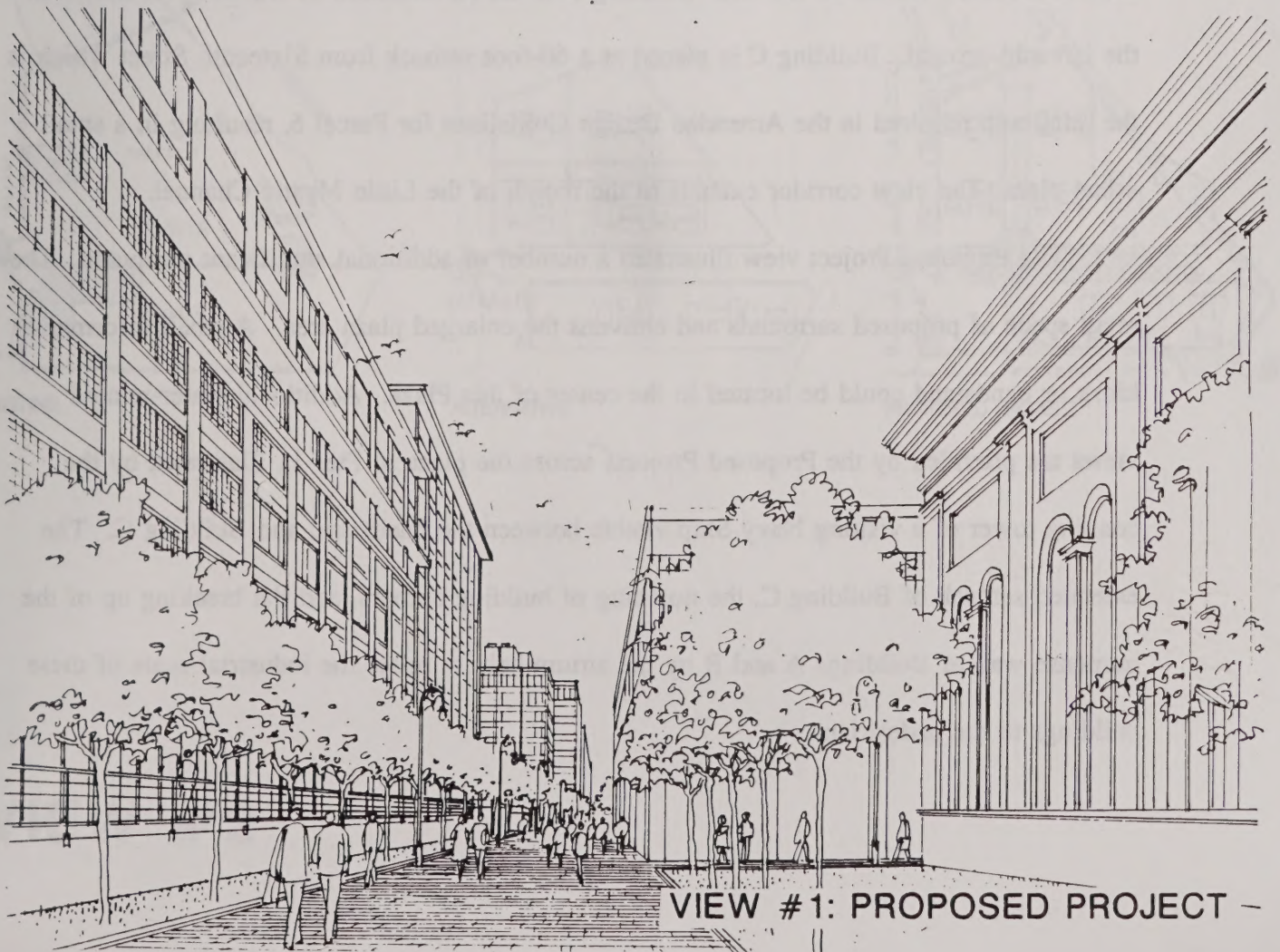
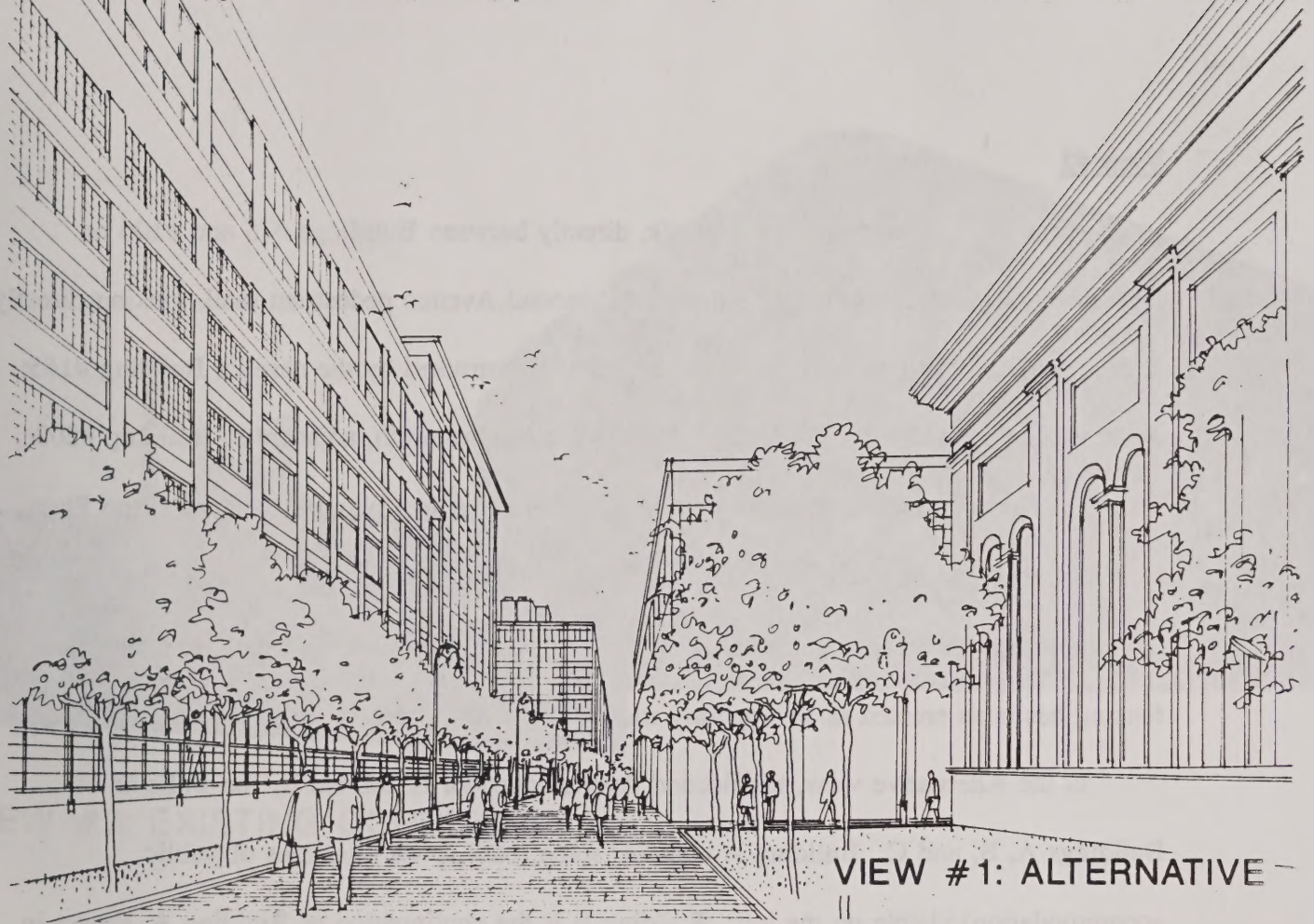




VIEW #1: EXISTING CONDITIONS



VIEW #1

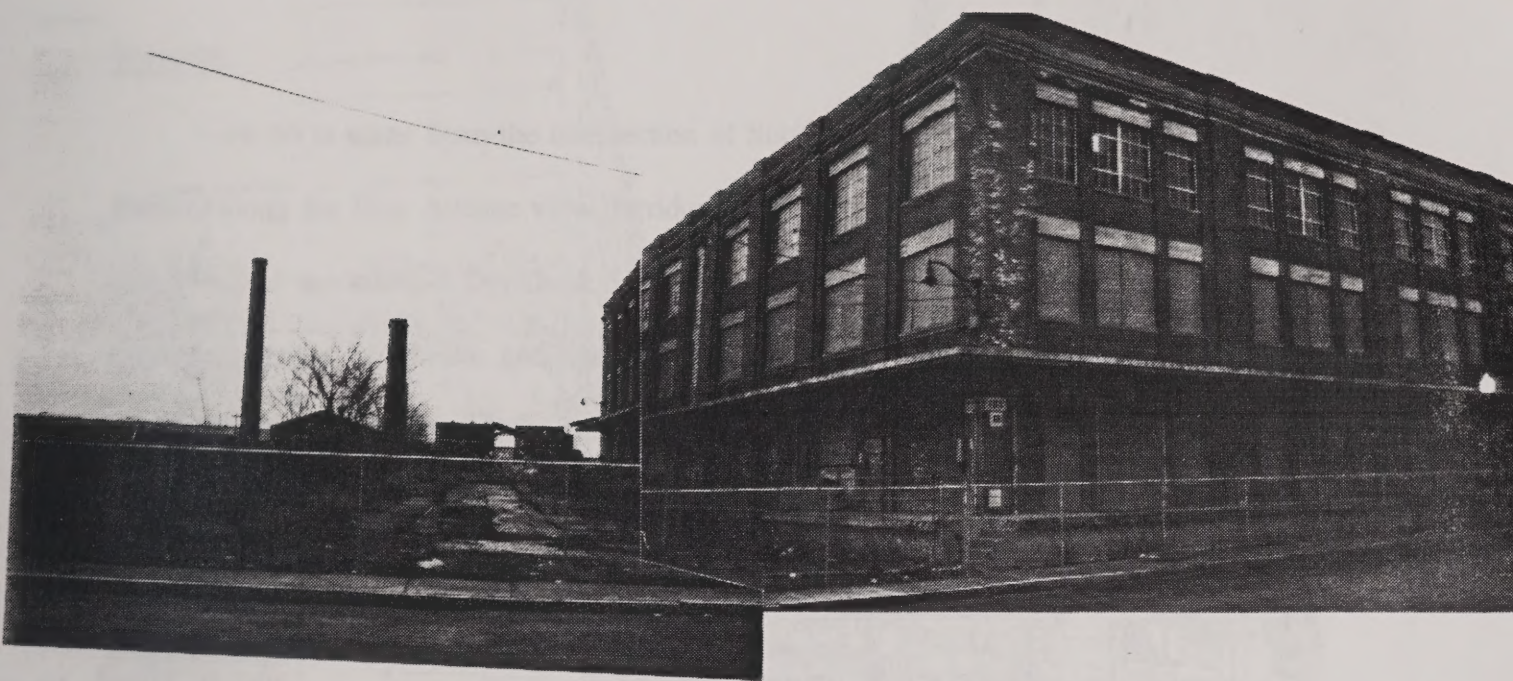


View #2

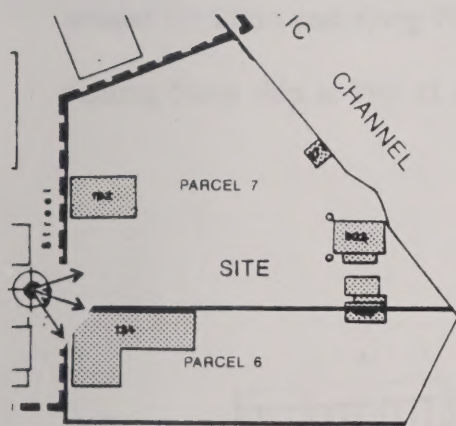
View #2 is taken from the sidewalk, directly between Buildings #75 and #106 on Sixteenth Street, standing in the center of the Second Avenue pedestrian mall, looking directly at Parcels 6 and 7. Currently, the view corridor is obstructed by the derelict Building #165; the smokestacks which were visible in View #1 are to the north, adjacent to Building #203. The view has been expanded to look obliquely across the area planned as Yard's End Plaza, currently occupied by Building #131 in the foreground. All structures visible in the photograph are slated for demolition. Little or no water views can be seen. The hurricane fencing has been erected as a temporary measure until the site is redeveloped.

In the Alternative view, the Second Avenue corridor is defined by the walls of Buildings A, B, and C. Building A contains some retail space (facilities of public accommodation) visible on the left. Building B is the continuation of Building A, shown in the left mid-ground. Building C is placed at a 60-foot setback from Sixteenth Street which is the minimum required in the Amended Design Guidelines for Parcel 6, resulting in a small urban plaza. The view corridor extends to the mouth of the Little Mystic Channel.

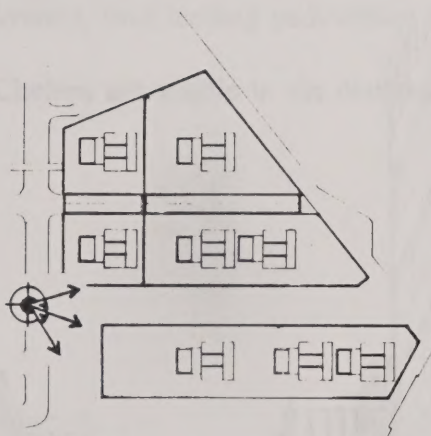
The Proposed Project view illustrates a number of additional significant attributes. The retail space as proposed surrounds and enlivens the ^{greatly}enlarged plaza area. A small information kiosk or bandstand could be located in the center of this Plaza. Additional water-related views are provided by the Proposed Projects^{se} across the plaza to Pier 11 illustrated by the conning tower of a visiting Navy Ship visible between the bandstand and Building C. The extended setback of Building C, the notching of building corners, and the breaking up of the immense wall of Buildings A and B by the atrium help to relate the industrial scale of these buildings to the pedestrian.



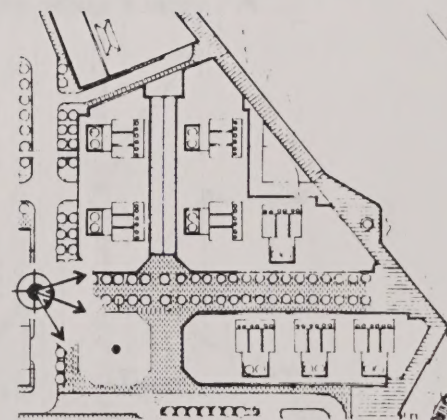
VIEW #2: EXISTING CONDITIONS



EXISTING

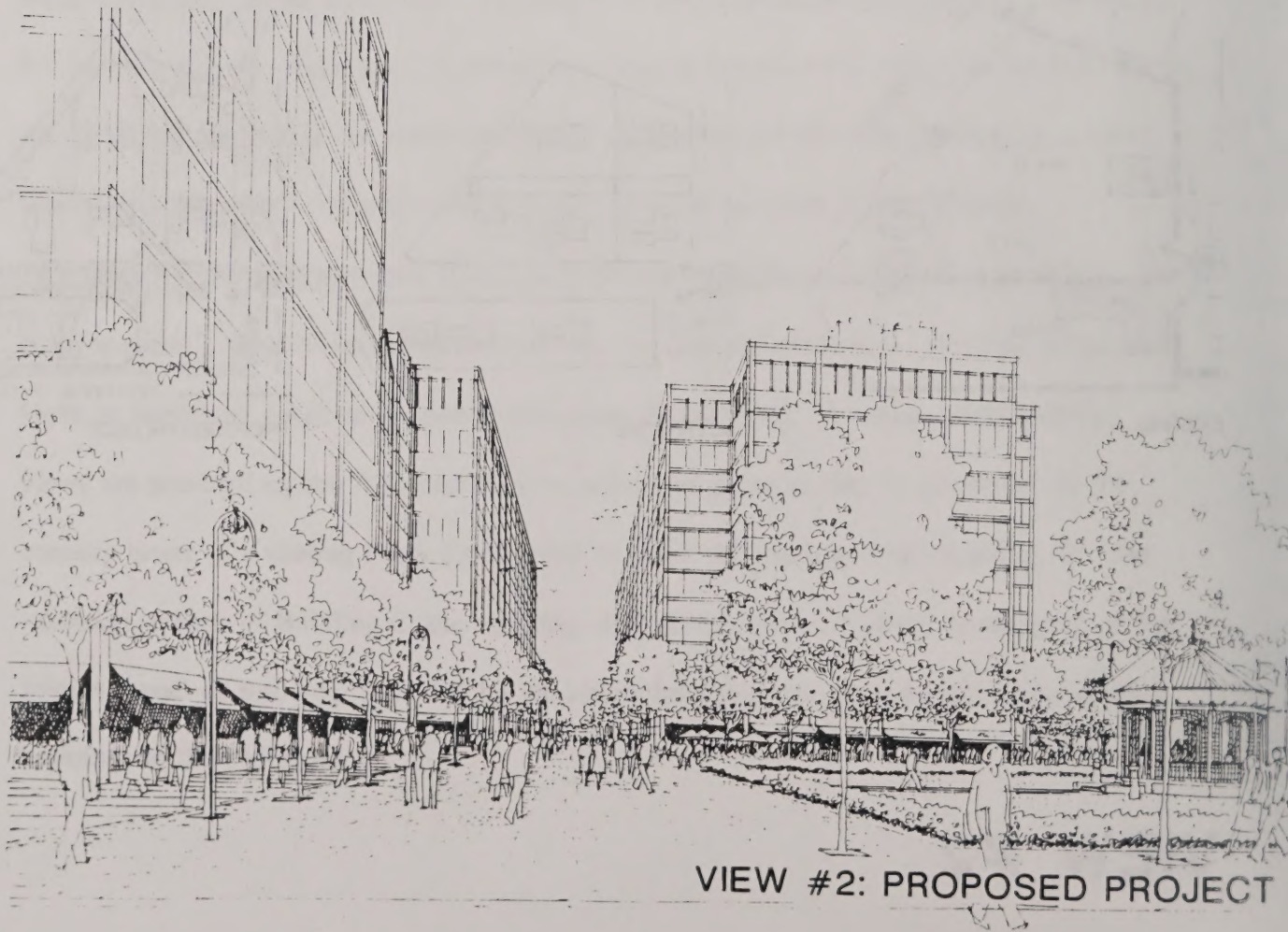
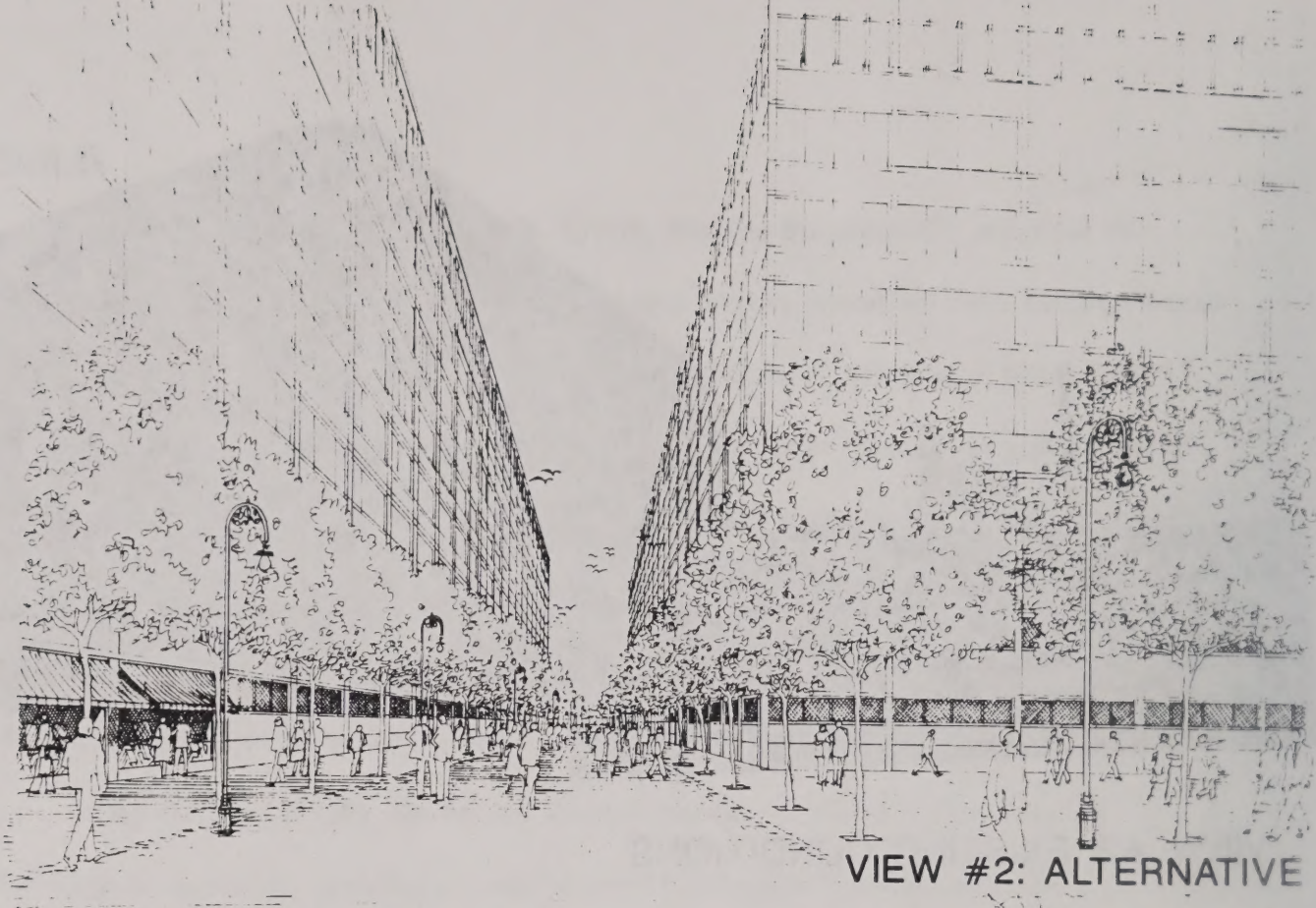


ALTERNATIVE



PROPOSED PROJECT

VIEW #2



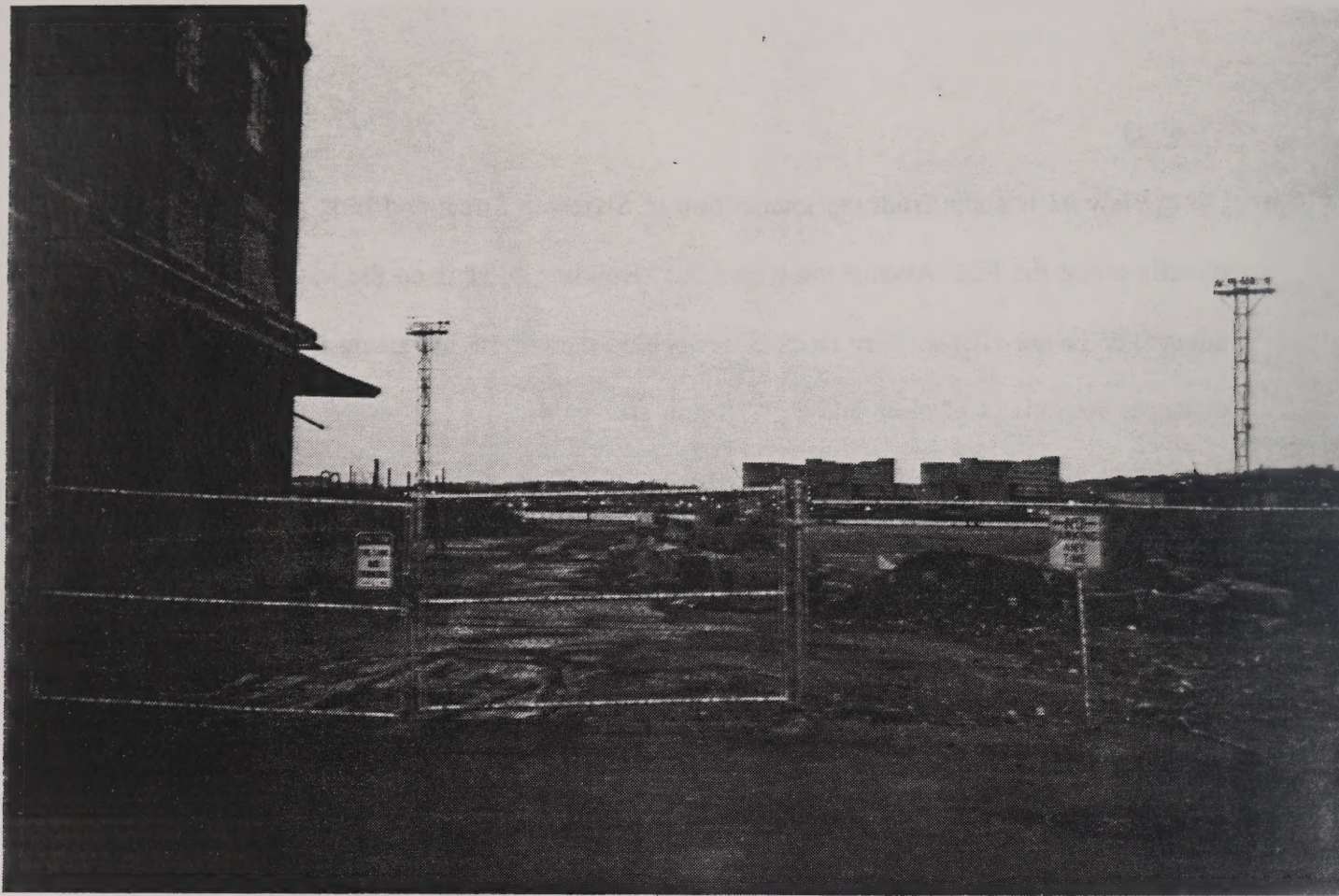
View #3

View #3 is taken from the intersection of Sixteenth Street and First Avenue looking directly along the First Avenue view corridor. Building #131 is on the left. The light towers along Pier 11 are visible. Dry Dock 5 lies behind the granite blocks on the right. In the distance, portions of Chelsea and East Boston are visible.

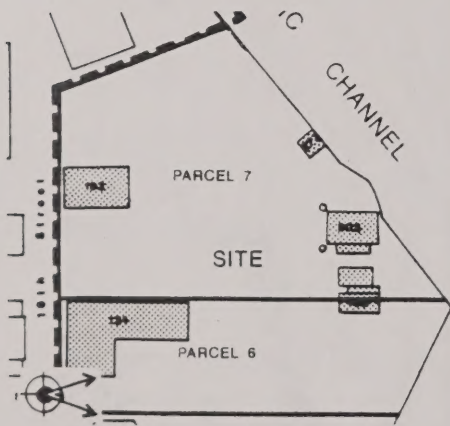
The Alternative view depicts the 60-foot setback mandated for Building C. The lower three levels of the structure are primarily parking. Under this scenario, retail spaces occur along the Little Mystic Channel and along Sixteenth Street in Building A. The small urban plaza created by the setback appears in the left foreground.

In the Proposed Project, the setback and notching of Building C allows the creation of a substantial Plaza, visible on the left; this space is enlivened by the retail spaces proposed around the Plaza and along First Avenue, thus leading pedestrians to the water's edge. A visiting Navy ship at Pier 11 and Chelsea are visible in the distance.

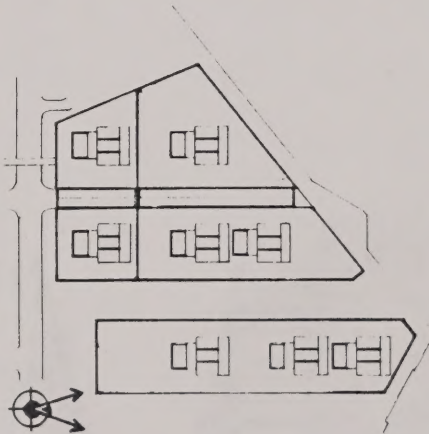




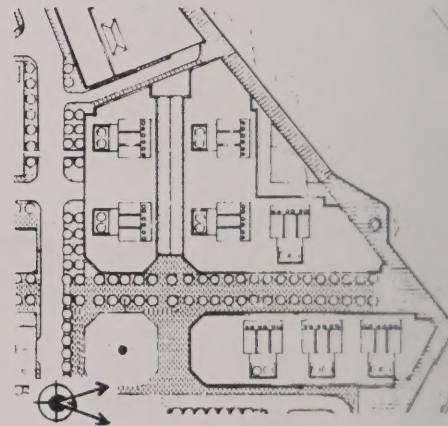
VIEW #3: EXISTING CONDITIONS



EXISTING

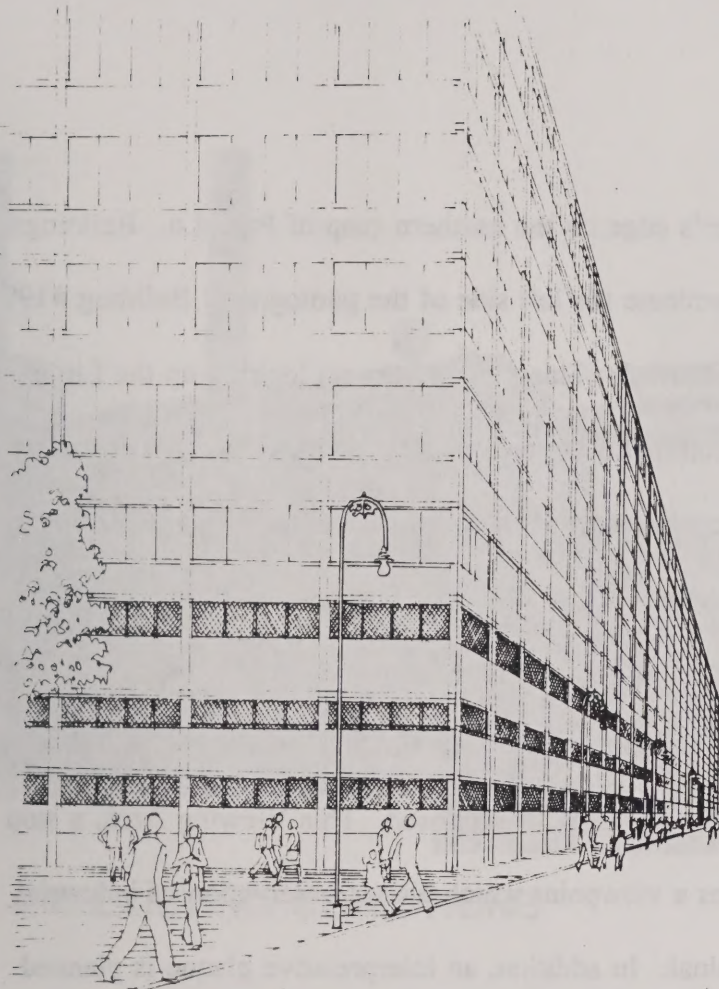


ALTERNATIVE

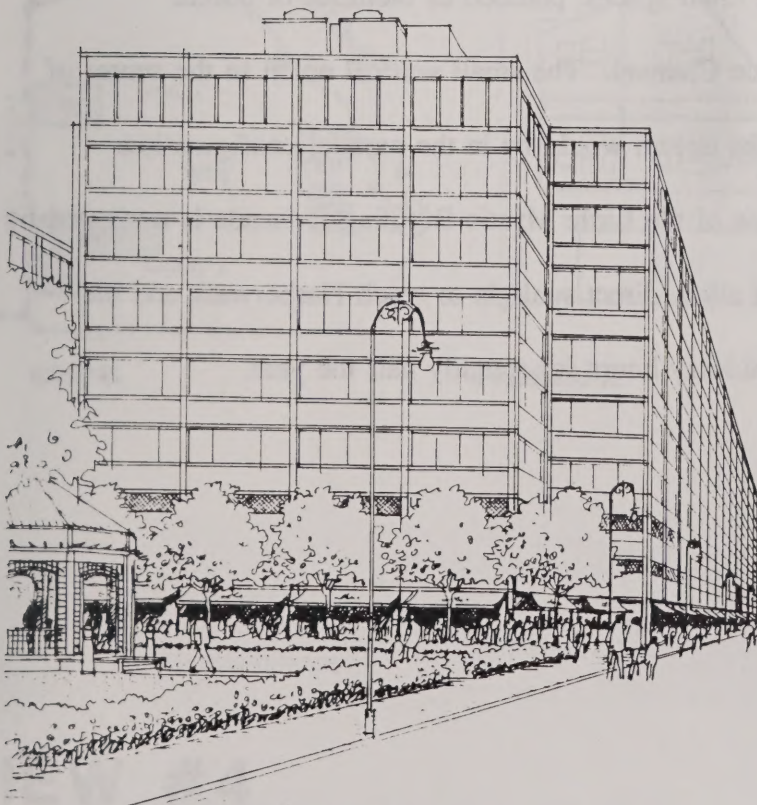


PROPOSED PROJECT

VIEW #3



VIEW #3: ALTERNATIVE



VIEW #3: PROPOSED PROJECT

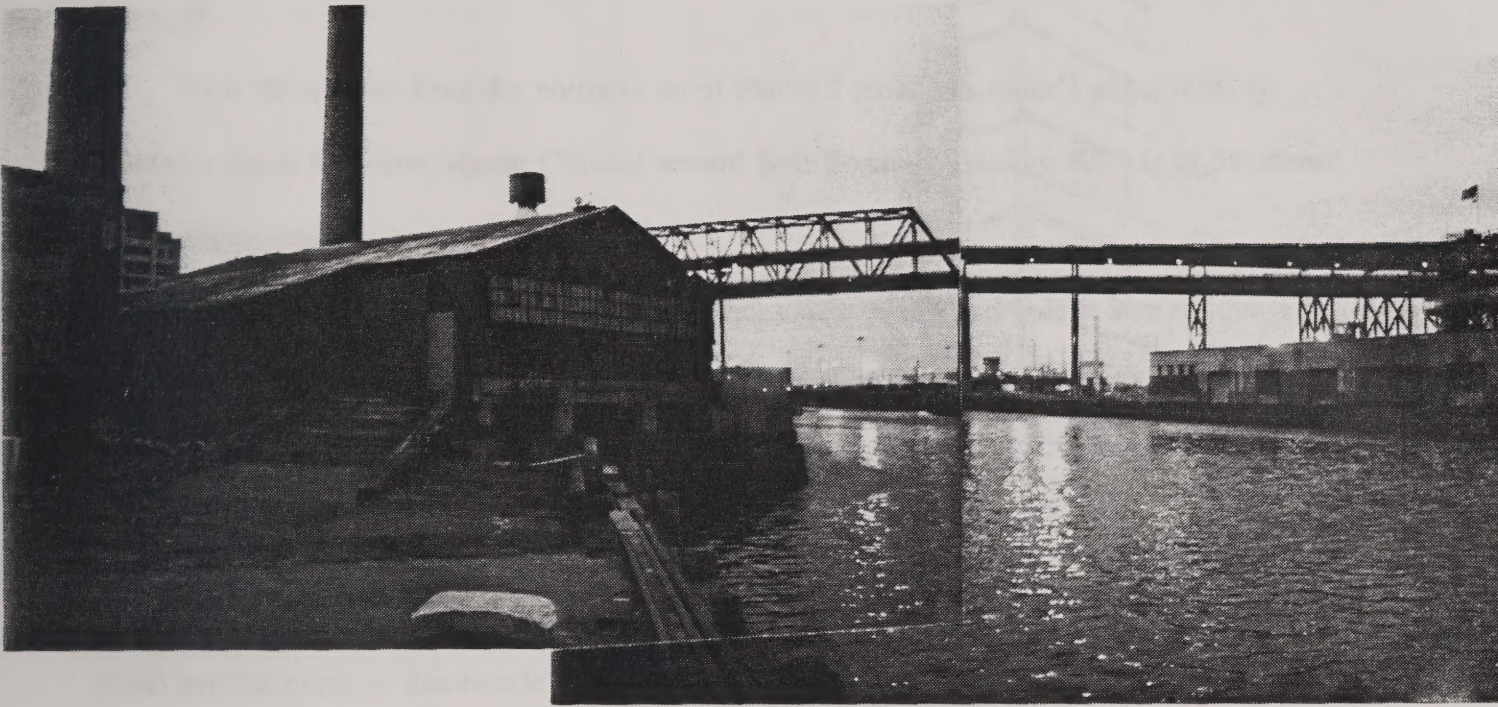
View #4

View #4 is taken from the water's edge on the northern cusp of Parcel 6. Buildings #165 and #203 (with smokestacks) dominate the left side of the photograph; Building #199 is just visible behind the chimney at the far left. This view northwest looking up the Little Mystic Channel. The Tobin Bridge dominates the overall view and the Moran Container Terminal Mystic Pier #1 Building occupies most of the right side of the photograph. Cranes and container storage areas are visible.

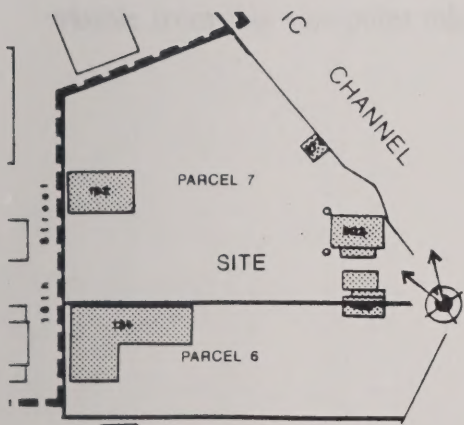
In both the sketch views, more of the Tobin Bridge is visible and the old sugar refineries may be seen in the distance. Where the existing bulkhead juts out at Building #203 (to be demolished), a Working Port Viewing Area is proposed. This Viewing Area, a stop on the Double Interpretive Loop, provides a viewpoint which allows observation of industrial activity at the Moran Container Terminal. In addition, an interpretative plaque is planned explaining the evolution of industrial Charlestown and the Chelsea/Mystic waterfronts.

The Alternative view shows the retail spaces, planned as facilities of public accommodation, along the Little Mystic Channel. The small vertical notch in the center of this Building B facade shows where the atrium would be in the parallel configuration.

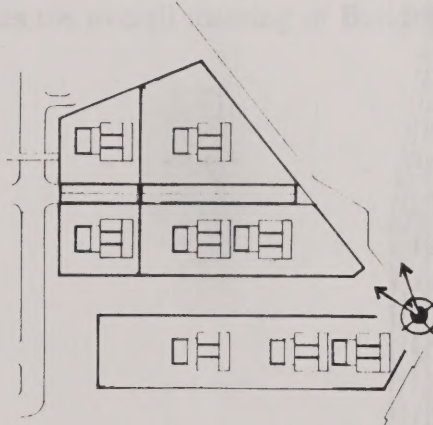
In the Proposed Project, the scale of the Little Mystic Building B facade is mitigated by its L-shaped configuration, which will allow direct sunlight to reach Harborwalk and the Working Port Viewing Area during mid-day hours for roughly half the year.



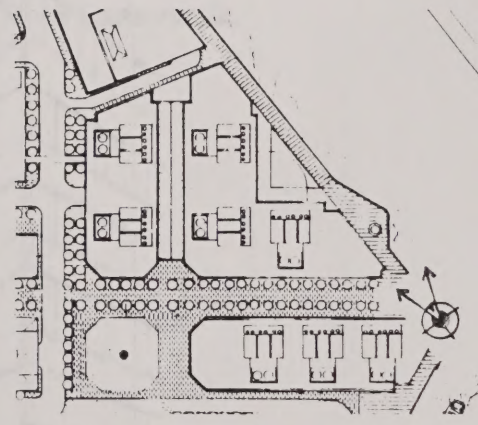
VIEW #4: EXISTING CONDITIONS



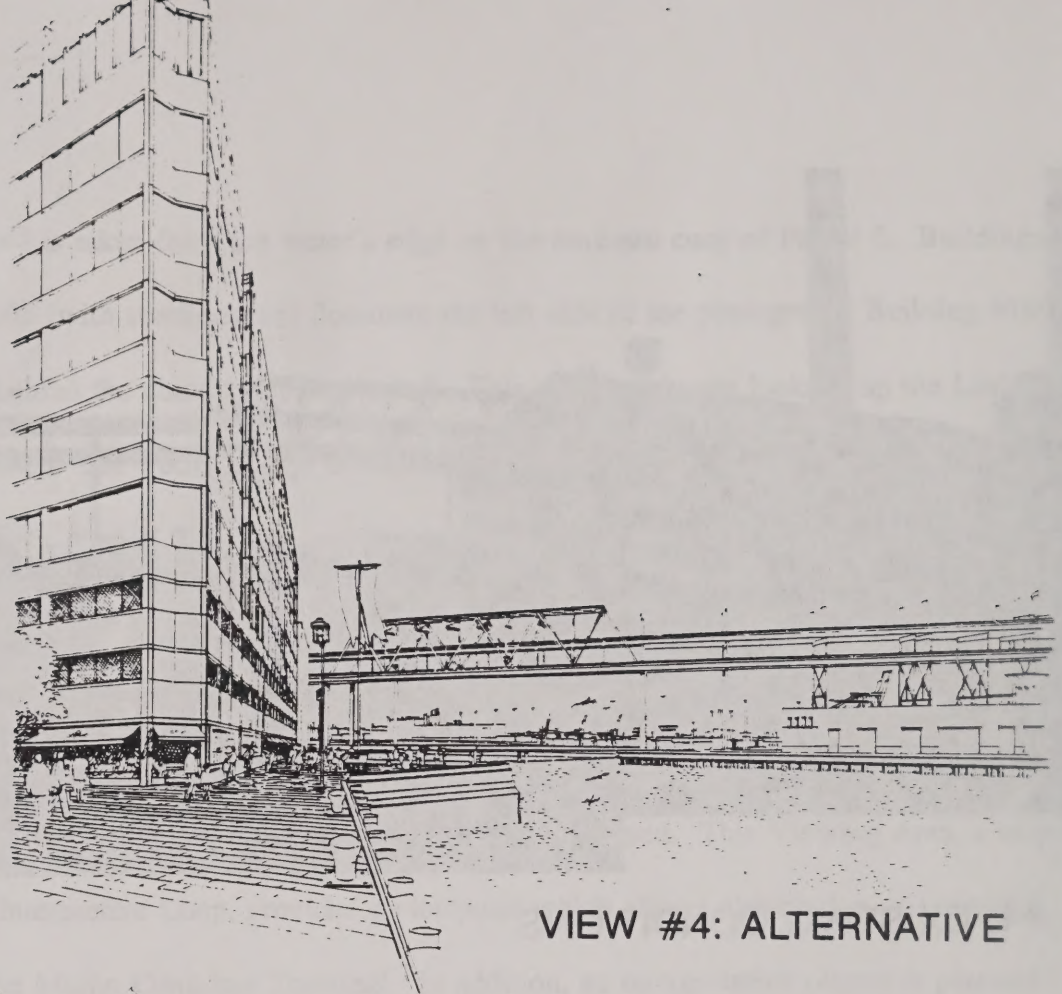
EXISTING



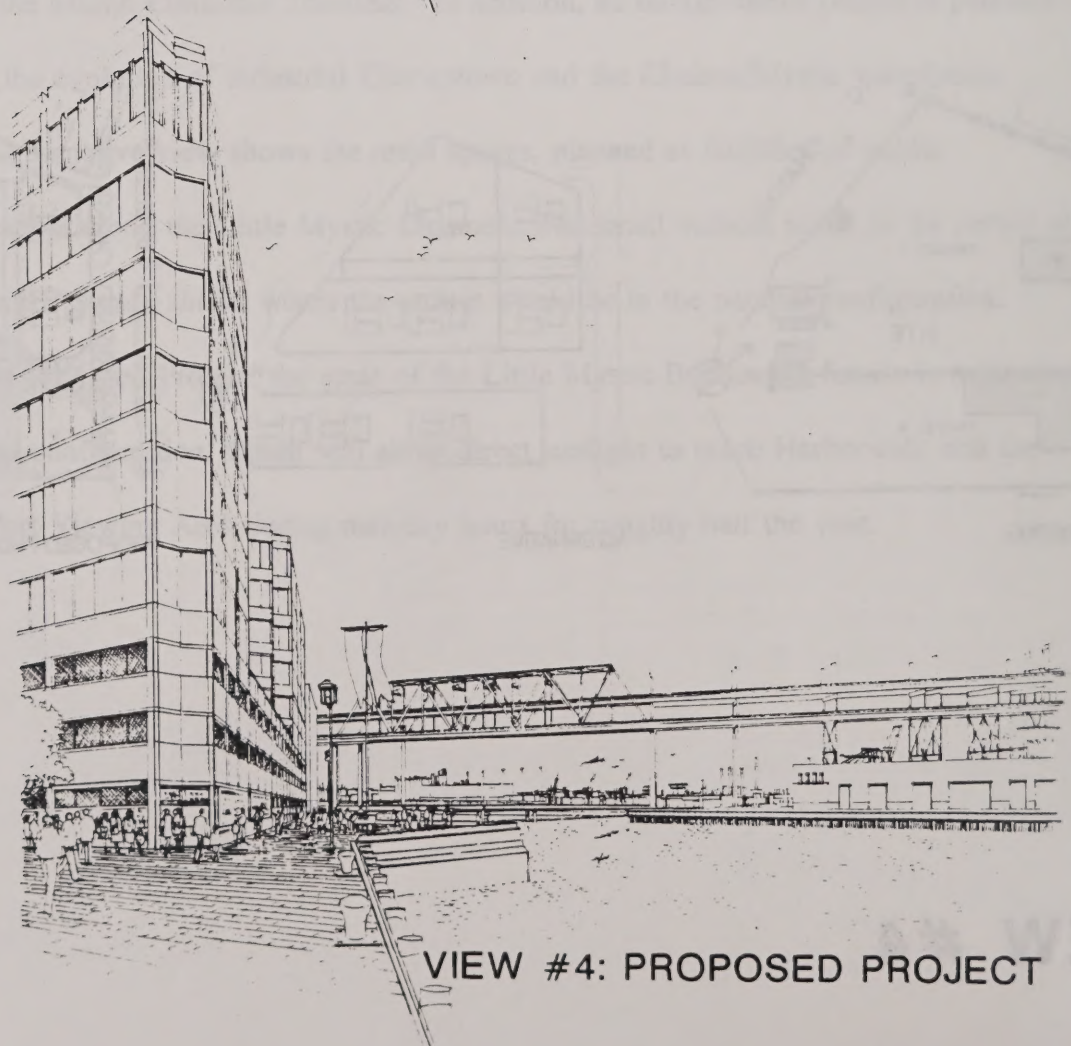
ALTERNATIVE



PROPOSED PROJECT



VIEW #4: ALTERNATIVE



VIEW #4: PROPOSED PROJECT

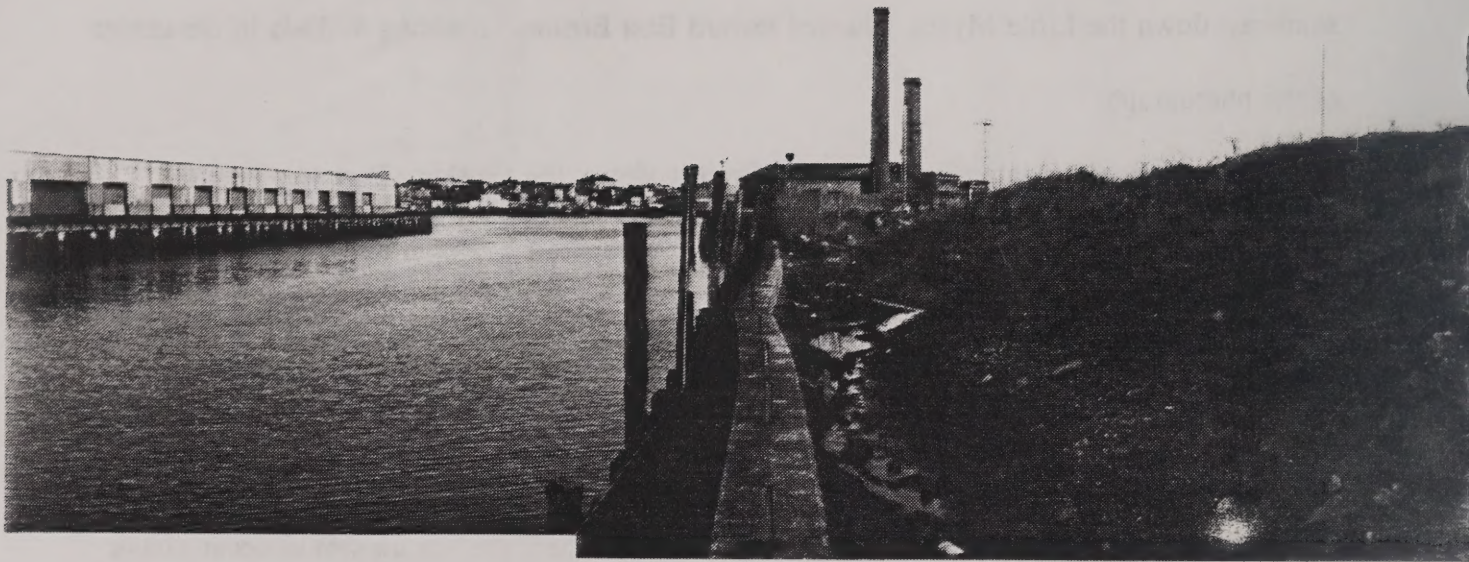
View #5

View #5 is taken from the northern tip of Parcel 7 along the water's edge, looking southeast down the Little Mystic Channel toward East Boston. Building #203 is in the center of the photograph.

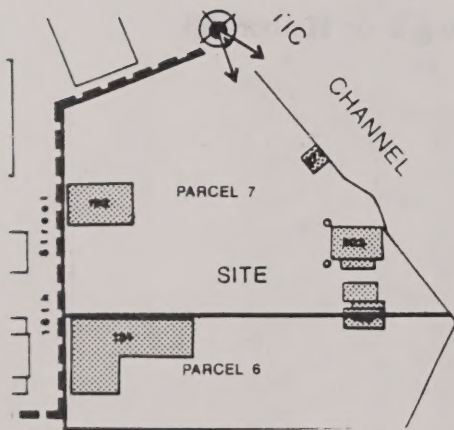
In both the Alternative and Proposed Project views, the Working Port stop on the Double Interpretive Loop is visible in the center. A freighter looms in the Mystic River. The Building #114 extension is to the right of the observer and is not visible in these sketches. Building C is just visible in the center.

The Alternative view shows the retail spaces along the Little Mystic Channel. The small vertical notch in this facade of Building B shows where the atrium would occur above the parking levels in the parallel scheme.

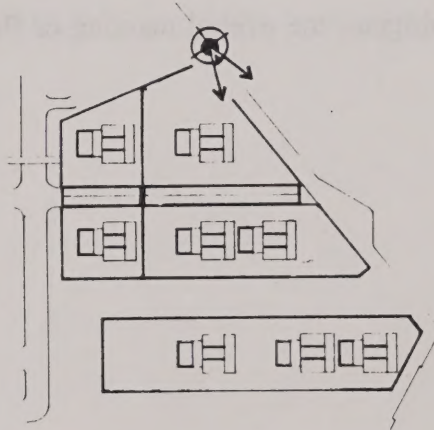
In the Proposed Project, the large opening created by the L-shaped configuration clearly visible from this viewpoint mitigates the overall massing of Building B on Harborwalk.



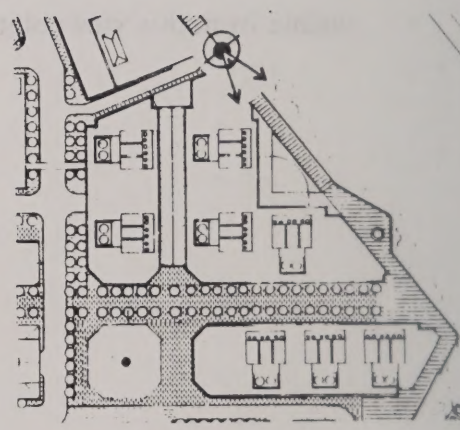
VIEW #5: EXISTING CONDITIONS



EXISTING

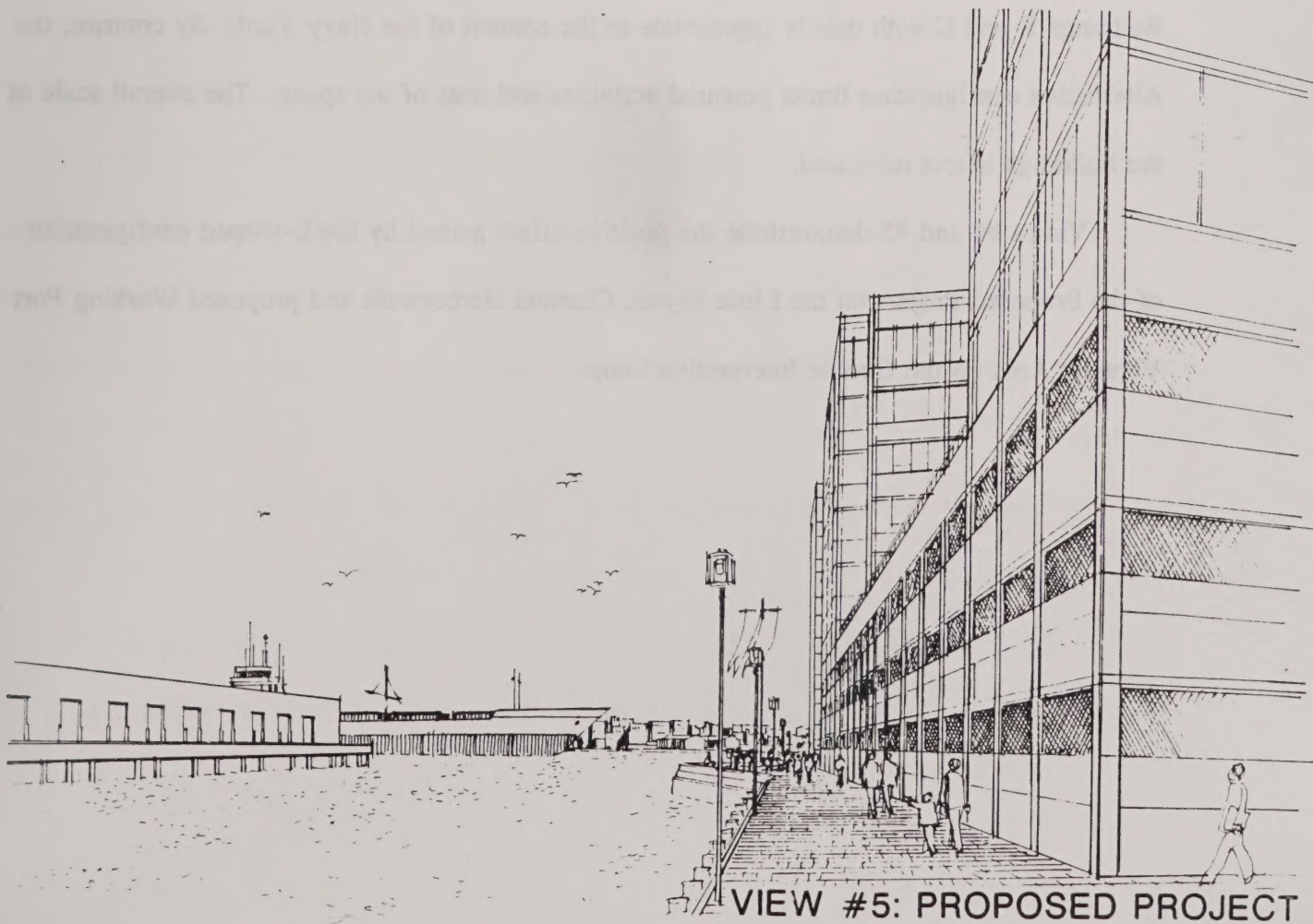
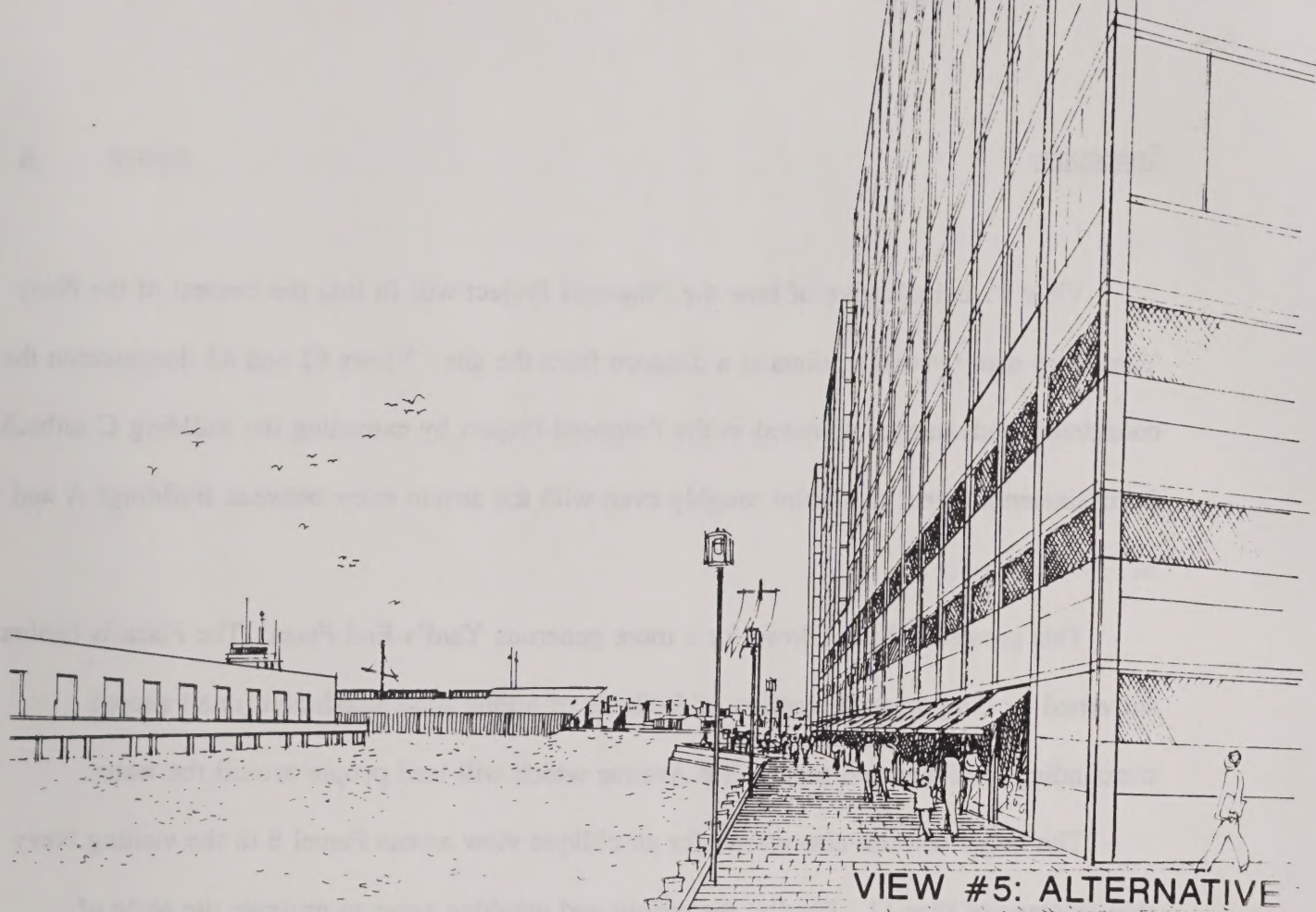


ALTERNATIVE



PROPOSED PROJECT

VIEW #5



Summary

View #1 is indicative of how the Proposed Project will fit into the context of the Navy Yard from many vantage points at a distance from the site. Views #2 and #3 demonstrate the considerable advantages obtained in the Proposed Project by extending the Building C setback from Sixteenth Street to a point roughly even with the atrium entry between Buildings A and B.

This greater setback allows for a more generous Yard's End Plaza. The Plaza is further enlivened by the proposed location of facilities of public accommodation (retail shops) surrounding the Plaza and along First Avenue which will lead people toward the water.

The larger setback also allows for an oblique view across Parcel 6 to the visiting Navy ship frontage of Pier 11. Finally, the atrium and notching serve to mitigate the scale of Buildings B and C with details appropriate to the context of the Navy Yard. By contrast, the Alternative configuration limits potential activities and uses of the space. The overall scale of the buildings is less mitigated.

Views #4 and #5 demonstrate the positive effect gained by the L-shaped configuration of the Proposed Project on the Little Mystic Channel Harborwalk and proposed Working Port Viewing Area on the Double Interpretive Loop.

1. Introduction

The wind tunnel study for the Proposed Project demonstrates that pedestrian level wind impacts fall within generally acceptable parameters. The BRA's guideline velocity of 22 mph is only exceeded in two areas under full buildout of the Charlestown Navy Yard Master Plan. These exceedences occur along the Little Mystic Channel in the vicinity of Building #114 and at Parcel 6.

Windy conditions at Building #114 result primarily from the planned addition to this structure. The Proposed Project does not materially effect pedestrian level winds in this area. The Alternative does however create a greater exceedence of the BRA guidelines in the vicinity of Building #114.

The wind tunnel study confirms the benefit of an open facade treatment for the first three parking levels of the Proposed Project as specified in the Secretary's Certificate on the ENF. This mitigation measure which will be incorporated in the Proposed Project creates acceptable conditions for walking along most of Harborwalk at the Little Mystic Channel. As a result, the BRA guidelines velocity is only exceeded for a short stretch along Parcel 6. This exceedence is primarily due to northerly and northeasterly winds which are predominantly associated with storm conditions. At such times pedestrians would not be expected along the Harborwalk.

All other pedestrian areas throughout the Navy Yard from Thirteenth Street to Yard's End exhibit favorable pedestrian level wind conditions with the Proposed Project. The portion of Harborwalk facing the Harbor, Yard's End Plaza, and the Second Avenue view corridor fall within generally acceptable pedestrian level wind standards for walking and

stationary activities. Furthermore, the proposed mitigation of an open facade design for the first three parking levels has been incorporated to make the Little Mystic Channel Harborwalk as pleasant as possible during time that pedestrians will actually use this area.

Generally, overall pedestrian level wind conditions are not significantly different between the Proposed Project and the Alternative inasmuch as differences of 1-2 mph in equivalent average velocity do not represent a meaningful distinction.

**A WIND TUNNEL STUDY OF PEDESTRIAN LEVEL
WINDS FOR THE PROPOSED BIOMEDICAL CENTER
IN THE CHARLESTOWN NAVY YARD**

VOLUME I

MAIN TEXT AND APPENDICES

BY

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BOSTON MASSACHUSETTS 02112
ATTEN. MR. PAUL REAVIS**

**FROM:
THE WRIGHT BROTHERS FACILITY
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE MASSACHUSETTS 02139**

A WIND TUNNEL STUDY OF PEDESTRIAN LEVEL WINDS FOR THE PROPOSED BIOMEDICAL CENTER IN THE CHARLESTOWN NAVY YARD

Frank H. Durgin P.E.

1. INTRODUCTION

An erosion technique has been used in a wind tunnel to obtain estimates of the occurrence of pedestrian level winds for 'EXISTING', 'BASE', 'PROPOSED', and 'ALTERNATIVE' condition configurations for the proposed Biomedical Center in the Charlestown Navy Yard in Boston. The site is at the east end of the Navy Yard between Sixteenth Street and the Mystic River. Predicted 100 hour return period equivalent average wind speeds were obtained at each of 78 locations covering the site and much of the east end of the Navy Yard for each of the four configurations.

The study was performed in the Wright Brothers Facility wind tunnel of the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology. The erosion technique produces semiquantitative predictions of return period wind speeds at a large number of locations and is used to insure that no excessively windy places are missed. The results provide a means of comparing the relative windiness of each of the four configurations considered and, using Melbourne's Criteria, an evaluation of the types of pedestrian activities that most people would perceive as appropriate at each of the 78 locations examined for each configuration.

The results of this study are presented in Tables 3 to 5 and figures 9 to 16 and can be summarized as follows:

1) For 'EXISTING' conditions for which there are no buildings, except the existing Building 116, east of Sixteenth Street, or south of First Avenue between Thirteenth and Sixteenth Streets (see Figure 7), there are no locations where the predicted winds exceed the Boston Redevelopment Authority (BRA) guideline wind speed or that have predicted winds in Melbourne's Category 2 (Uncomfortable for walking) (see Figure 8);

2) For 'BASE' conditions, which include the proposed Hotel south of First Avenue, the new Boston Aquarium, and the rebuilt Building 116 (see Figure 9), the only area where predicted winds exceed the BRA guideline wind speed or are in Melbourne's Category 2 is in the Harborwalk just north of the north corner of the new wing of Building 116 (see Figure 10);

3) For 'PROPOSED' conditions, which include all the 'BASE' configuration buildings and the proposed Buildings A, B, and C of the Biomedical Center (see Figure 11), there are two areas where predicted winds exceed the BRA guideline wind speed or are in Melbourne's Category 2. The first is in the

Harborwalk just north of the north corner of the new wing of Building 116, as was the case for the 'BASE' configuration, and the second is near the corner in the Harborwalk at the east end of Building C (see Figure 12). The windiness in both areas occurs primarily during NE storms when there will be precipitation and for NW winds which occur primarily in the winter when the Harborwalk would not be used;

4) For 'ALTERNATIVE' conditions, which are the same as those for 'PROPOSED' conditions except that alternative versions of Buildings A, B, and C of the Biomedical Center were in place, the same two areas have the same excessive winds. Again, the windiness in both areas occurs primarily during NE storms and for NW winds which occur primarily in the winter when the Harborwalk would not be used.

Basic information about the experimental equipment, Acquisition and reduction of data, and evaluation of the results is included in the main body of the text. The appendices, included in the main text, provide additional technical material on the methods and procedures used. The photographs of the eroded particles for the 'EXISTING', 'BASE', 'PROPOSED', and 'ALTERNATIVE' configurations are contained in Volumes IIA, IIB, IIC, and IID respectively. The erosion wind speeds, annual Weibull Constants, and percent contributions for each of the 16 wind directions used are provided in the appendices in Tables A3 to A8 in Volume I. For quick reference Tables 2-5 and Figures 9-16 were prepared to summarize all the data used in the evaluation of the results.

Information about the wind tunnel, the two approach flows used, the test equipment, and the test model configurations used is given in Section 2 and discussed further in Appendices I and II. Section 3 provides an in-depth explanation of the erosion technique. The methods of data reduction used are presented in Section 4 and discussed in more detail in Appendix III. The BRA guideline wind speed and Melbourne's criteria are discussed in Section 5 and described more fully in Appendix IV. Results are presented in Section 6, discussed in Section 7, and summarized in Section 8.

2.0 THE EXPERIMENTAL EQUIPMENT

2.1 THE WIND TUNNEL AND APPROACH FLOW

All testing was conducted in the Wright Brothers Memorial Wind Tunnel, a diagram of which is shown in Figure 1. Although this wind tunnel was designed primarily for aeronautical testing, relatively simple modifications allow it to be used for pedestrian level wind studies, such as that performed for this Biomedical Center study.

Due to resistance to the wind created by the ground, trees, buildings, and other obstructions near ground level, the wind speed at pedestrian level is not the same as the wind speed at greater heights. This wind speed, which must be zero at the ground surface, increases exponentially up to a height of 900 to 2000 feet, depending on the type of terrain upwind of the site. The region in which the wind speed increases with height is commonly referred to as 'The Atmospheric Boundary Layer', and the 900-2000 foot height, above which the wind speed is constant, is called the 'Gradient Height'. The atmospheric boundary, sometimes called the approach flow, is modeled in the wind tunnel using spires and roughness blocks placed on the test section floor upstream of the modeled part of the city, as shown in Figure 2. Given the nature of the Navy Yard site and its surrounding area two approach flows were used: An ocean type for NNE, NE, ENE, E, ESE, SE, and SSE winds, and a suburban type for S, SSW, SW, WSW, W, WNW, NW, NNW, and N winds. The resulting atmospheric boundary layers were measured in the wind tunnel and found to be appropriate for this test. An in depth discussion of these boundary layers is presented in Appendix II.

2.2 TEST EQUIPMENT

The test equipment used consisted of the following:

- 1) An MKS model 398hd-100 was used to measure the pressure difference between a pitot tube mounted in the wind tunnel stilling section and the average of two piezo pressure taps on the walls on the test section. The resulting pressure difference was used to estimate the gradient wind speed in the wind tunnel test section;
- 2) Two Olympus model OM-1 cameras, one with a 35 millimeter lens and the other with a 28 mm lens, were mounted looking through two holes in the ceiling of the wind tunnel directly over the center of the model in order to take pictures of the models and eroded particles;
- 3) Three 'Tota-Light' flood lights were mounted in the tunnel to provide the extra light needed for the film used. They were mounted in such a way as to minimize any shadows; and
- 4) Blue colored plastic particles were used for the erosion. The particles were flattened cylinders approximately 0.060 inches in diameter and 0.08 inches long

and thus, at a scale of 1-600, were the equivalent of about 3 feet in diameter and 4 feet long.

2.3 THE MODELS

The approach flow was created as the wind passed over the spires and roughness blocks and simulated the expected atmospheric boundary layers upwind of the model of the Navy Yard. One model of the site and surrounding area was 8 feet in diameter and constructed at a scale of 1-600. Thus it modeled a full scale area 2400 feet in diameter. The entire building site, including all the Navy yard area east of Sixteenth Street and south of First Avenue between Thirteenth and Sixteenth Streets was left empty and the four different configurations, EXISTING, BASE, PROPOSED, and ALTERNATIVE were created by adding or removing various model buildings. Figures 3-6 are photographs of each of the four configurations and Figure 7 shows where each of the 78 measurement stations were located. This figure is included in order to relate the results given in Tables 7-9 to actual locations in the site.

3. THE EROSION TECHNIQUE

The erosion technique provides a means of qualitatively measuring wind speeds in the vicinity of a project and has been extensively used over the last 10 years at WBF [2, 12-15, 17, 19, 22-27, 30, 31, 42, 47, and 48]. To perform such tests, rice-like colored plastic particles are spread one layer thick over all areas of interest in the model. Two cameras are mounted at the top of the wind tunnel, facing down toward the model. Pictures of the model are then taken at wind tunnel gradient wind speeds of 0, 10, 13, 17, 23, 30, and 40 mph. This process is repeated for each of 16 wind directions (NNE, NE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW, and N). From these sets of pictures it was possible to determine the approximate wind speed at which the particles were swept away from each of the 78 locations evaluated for each configuration tested. For example, the windiest places are those at which the particles are swept away at the lowest gradient height wind speeds (10-17 mph), while locations that are still covered at 40 mph are relatively calm locations.

Listings of the gradient height wind speeds at which the particles were swept away from each of the 78 locations at each of the 16 wind directions are given in Tables A3 to A6 for the four configurations tested.

Although the results from the erosion study have been used to obtain estimates of the return period pedestrian level wind speeds, the primary purpose of these tests was to obtain qualitative estimates of the effects of adding the various proposed buildings to the existing site. Results from several studies [13, 14], in which both the erosion and hot-wire techniques were used to obtain estimates of the 100-hour return period pedestrian level wind speeds, indicate that the standard deviation of the difference in predicted 100-hour return period pedestrian level winds between the two type of data is usually about 4 mph.

4.0 REDUCTION OF DATA

4.1 INTRODUCTION

The primary data from this erosion study consist of the sets of photographs taken of the eroded particles which appear in Volumes IIA, IIB, IIC < and IID for the 'EXISTING', 'BASE', 'PROPOSED', and 'ALTERNATIVE' configurations respectively. Overall there are 896 different photographs, 224 for each configuration; one from each of two cameras showing the erosion effects at each of the 7 wind speeds for each of 16 directions.

While all the information is contained in the photographs, it is hard to evaluate the effect of any of the changes in configurations on the wind environment at any location given any one photograph or even an entire set of photographs. To evaluate the relative effect of each change in configuration at each of the 87 locations for each of the four configurations, the photographs were examined to determine the gradient wind speed at which each location became free of particles for each configuration. Those wind speeds are listed in Tables 6-9.

4.2 THE EQUIVALENT AVERAGE

A high average wind, high gustiness, or an infrequently occurring strong gust can make a location be perceived as windy. The 'equivalent average wind speed' concept was developed as a single quantity that included the effects of each of these type of winds and could be used in the evaluation of pedestrian level winds measured in hot-wire studies.

In a typical hot-wire study, the 100 hour return period average, effective gust, and peak gust are determined for each location considered. The 'equivalent average wind speed' originally was defined as the largest of: 1) the average wind speed; 2) the effective gust speed divided by 1.4; and 3) the peak gust wind speed divided by 1.9.

If the predicted average, effective gust, and peak gust wind speeds are obtained for many stations, 1.4 is the average of the ratios of effective gust to average wind speed s , and 1.9 is the average of the ratios of peak gust to average wind speed [10, 14]. Thus for the 'average' station the three quantities defined above would be equal.

However, recently [10], it was found that, if the 'equivalent average wind speed' is to conform with the results of Hunt et al. [34] and Murakami et al. [41], then the one should divide the predicted average by 1.10, the predicted effective gust by 1.43, and the predicted peak gust by 1.98 and pick the highest of these. The reasoning behind this change stems from two facts: Both groups found steady average winds to be less annoying than gusty winds, but that spatial variations of average winds are important; and Murakami found that the

apparent crossover between average winds and gusting was at about 20% turbulence[10].

Defined in this way the 'Equivalent average' accounts for high average winds, gusting winds, and rarely occurring peak gusts. Also, because Melbourne's criteria for pedestrian level winds was derived for peak gust winds and then converted to apply to average winds, it is believed that the predicted equivalent average winds can be used with his criteria.

Finally, in references [10] and [14] it is shown that when an equivalent average wind speed of 9.5 mph is assumed for the wind speed at which the particles erode, the standard deviation between hot-wire and erosion results is minimized.

5.0 CRITERIA

5.1 THE BRA EFFECTIVE GUST WIND SPEED GUIDELINE

In order to evaluate the impact of pedestrian level winds, wind speed criteria or guidelines are necessary. The BRA uses a 100-hour return period effective gust guideline wind speed of 31 mph. The effective gust is defined as the average wind speed plus 1.5 times the rms (root mean square variation about the average) wind speed. This effective gust wind speed is referred to as the BRA guideline wind speed. The 31 mph effective gust roughly corresponds to the fastest 1-minute gust that occurs about once each 100-hours.

To convert the BRA guideline effective gust wind speed of 31 mph to an equivalent average wind speed as used in this report, the 31 mph must be divided by $1.43/1.10 = 1.30$ which gives a value of 24 mph. Thus any predicted 100 hour return period wind speed that exceeds 24 mph also exceeds the BRA guideline wind speed. In this study for the 'EXISTING' configuration no station exceeds the BRA guideline, for the 'BASE' configuration only station 75 does, for the 'PROPOSED' configuration stations 54, 75, and 76 do, and for the 'ALTERNATIVE' configuration stations 43, 44, and 75 do. All these stations are at or near either the north or east corner in the harbor walk and NE storm winds are the major cause of the windiness at each.

5.2 MELBOURNE'S CRITERIA

The other wind speed criteria used to evaluate pedestrian level winds in this study are those developed by W. H. Melbourne [37]. In 1978 Melbourne conducted a literature review to find a probabilistic criteria for pedestrian level winds that would reflect different types of human activity as well as safety considerations. The results of that study are summarized in Figures 14 and A12. The criteria are described in detail in Appendix IV. The vertical scale in Figure 14 is the equivalent average hourly wind speed as defined above in mph, and the

horizontal scale is the probability of that wind speed occurring based on the number of hours. Five comfort criteria are given. They are: 1) 'Unacceptable and dangerous'; 2) 'Uncomfortable for walking'; 3) 'Acceptable for walking'; 4) 'Acceptable for short periods of exposure for standing or sitting'; and 5) 'Acceptable for long periods of exposure for standing or sitting'.

These criteria, as defined for 100-hour return period wind speeds have been in use at the WBF since 1979, and since 1985 have been applied to 100-hour return period equivalent average wind speeds. Melbourne's criteria, when the horizontal scale is limited to a minimum probability of occurrence $P(U > U_p) = 0.001$ (1000 Hours), are given in Figure 14. The corresponding BRA guideline wind speed is also identified in Figure A12 by a circumscribed star symbol.

Melbourne's criteria cover all probabilities, as shown in Figure 14. Considering winds with a 100-hour return period (1 percent probability) occurrence, his criteria can be restated in tabular form as follows:

TABLE 1

MELBOURNE'S CRITERIA FOR 100 HOUR RETURN PERIOD
EQUIVALENT AVERAGE WIND SPEEDS

CATEGORY	DESCRIPTION	WIND SPEED
1	UNACCEPTABLE-DANGEROUS	$U_{eqav} \geq 27$
2	UNCOMFORTABLE FOR WALKING	$27 > U_{eqav} \geq 19$
3	ACCEPTABLE FOR WALKING	$19 > U_{eqav} \geq 15$
4	STATIONARY SHORT EXPOSURE	$15 > U_{eqav} \geq 12$
5	STATIONARY LONG EXPOSURE	$12 > U_{eqav}$

Melbourne's criteria are subjective and expressed in probabilistic form. They are based on the work of eight authors. The criteria in the table above suggests that if the 100-hour return period equivalent average wind speed exceeds 27 mph, the wind at that location will exceed 17 mph often enough to make that location dangerous. Similarly, if the 100 hour return period wind speed is less than 12 mph, then that location will not seem windy at all, and one can stand or sit comfortably for long periods of time except on very windy days.

The equivalent average wind speeds, defined in Appendix IV, are compared with Melbourne's criteria for average wind speeds to evaluate the results of this test (Table 4). Both the predicted 100-hour wind speeds and resulting Melbourne categories are given for each station and configuration in that table. Those same results are give on maps of the area in Figures 4-11. An asterisk appears next to any predicted wind speed or category in both the table and maps if the predicted equivalent average wind speed exceeds the BRA guideline wind speed in equivalent average form.

The dotted line in Figure A14 shows the estimated wind conditions at an elevation of 4.5 feet at Boston's Logan Airfield. Note that the dotted line lies above Melbourne category 3, acceptable for walking, and slightly below the BRA guideline equivalent average wind speed of 22 mph. This means that wind conditions in the open at Logan Airfield would be termed 'uncomfortable for walking' by Melbourne's criteria, but would be acceptable by the BRA guideline.

In order to provide some basis for the wind speeds in Table 3 and Figures 4 to 6, Table 4 has been provided. This table is based on Admiral Beaufort's wind scale, as interpreted by Penwarden [43], for pedestrian level winds. The wind speeds used in the table appear to be defined similarly to the effective gust wind speed used by the BRA, as indicated in the footnote. Thus they are about 1.4 times the equivalent average used in this report. The 100-hour return period guideline effective gust wind speed of 31 mph used by the BRA is at the dividing line wind speed between Beaufort's Categories 6 and 7. Melbourne's dividing line wind speed between Category 3, acceptable for walking, and Category 2, uncomfortable for walking, is 19 mph. When multiplied by 1.4 it becomes an effective gust of 27 mph, and falls in the middle of Beaufort Category 6.

6. DESCRIPTION OF RESULTS

The primary results of this pedestrian level wind study of the Charlestown Navy Yard Biomedical Center are the photographs contained in Volumes II A, II B, II C, and II D. Those photographs have been read to obtain the gradient wind speed at which each station in each configuration became free of particles for each of the 16 directions tested. Those readings are given in Tables A3 to A6. Each Volume contains all the photographs taken with Camera's I (28 mm lens) and II (35 mm lens) for one of the configurations tested. Those for the 'EXISTING' configuration are contained in Volume II A, for the 'BASE' configuration in Volume II B, for the 'PROPOSED' configuration in Volume II C, and for the 'ALTERNATIVE' configuration in Volume II D. There are five original copies of Volumes II A to II D.

The readings given in Tables A3 to A6 have been used as described in Appendix III to obtain the estimates of the annual 100-hour return period wind speeds and Melbourne Categories for each of the 78 stations in each configuration. The results are presented in Table 4 and shown in Figures 3-11. The predicted 100-hour return period wind speeds and Melbourne Categories for each station and configuration considered are compared in Table 4.

Tables A7 to A10 give the percent contribution of each wind direction to the total 1% probability for each station for each configuration. They are included to enable one to determine the wind directions which contribute the most to the total 1% probability of the predicted wind occurring. Then knowing that NW winds prevail in the winter, SW winds prevail in the summer, and easterly winds occur during storms, one can determine if any windiness at a station will effect its use and possibly how to reduce that windiness.

7. DISCUSSION OF RESULTS

7.2 'EXISTING' CONFIGURATION

The results for all configurations are given in Table 4. The predicted 100-hour return period wind speeds for each station considered for the 'EXISTING' configuration are indicated on the map in Figure 5 and the Melbourne Categories are given on the map in Figure 9.

For the 'EXISTING' configuration no location considered has predicted winds above the BRA guideline and no locations are predicted to be in Melbourne's Categories 1 or 2. In fact, of the 78 locations considered, 17 were in Category 3, 38 in Category 4, and 23 were in Category 5. The Average predicted wind speed for all stations was 12.9 mph.

The three windiest stations were 1, 13, and 76 all with predicted wind speeds of 17 mph. The most important wind directions for these three stations were NW for 1, WNW for 13 and NE for 76.

7.1 THE 'BASE' CONFIGURATION

For the 'BASE' configuration 2 stations had predicted wind speeds in Melbourne's Category 2; 75 and 43. Both are near the NW corner in the Harborwalk and at or near the north corner of the new high part of the rebuilt Building 116. Station 75 has a predicted 100-hour return period wind speed of 25 mph and is the only station to exceed the converted BRA guideline wind speed of 22 mph. The predicted wind speed at station 43 is 20 mph, which is in Melbourne's Category 2, but below the BRA guideline wind speed.

Stations 1, 13, and 76, which were the windiest for the 'EXISTING' configuration, have predicted wind speeds that are unchanged or slightly reduced.

Thus the 'BASE' configuration has one station, 75, that exceeds the BRA guideline wind speed, 2 stations, 43 and 75, that are in Melbourne's Category 2, 22 in Category 3, 33 in Category 4, and 21 in Category 5. The average predicted wind speed is 13.6 mph, which is 0.7 mph higher than that for the 'EXISTING' configuration.

The wind direction responsible for most of the windiness at station 43 is NE. NE and NW winds are the main contributors to the windiness at station 75. These are winter and storm winds and this is an isolated end of the Harborwalk so this windiness probably will not effect the normal use of the Harborwalk in this area.

7.3 THE 'PROPOSED' CONFIGURATION

The results for the 'PROPOSED' configuration are presented in Table 4 and on the maps of the site in Figures 8 and 12. For this configuration predicted winds at a total of 5 stations (43, 54, 64, 75 and 76) exceed the BRA guideline wind speed. However, all of these stations are in two relatively small areas. Two (43 and 75) are near the north corner of the Harbor walk and three (54, 64, and 76) near the east corner. All of these are in Melbourne Categories 1 (54 and 76) or 2 (43, 64, and 75). Winds at 5 additional stations (1, 44, 45, 48, and 63) have predicted winds in Melbourne's Category 2, but do not exceed the BRA guideline wind speed. With the exception of station 1, these are also near the same areas. Station 1 is at the west corner of building 199 and sufficiently far from the 'PROPOSED' buildings that the predicted increase in predicted wind speed of 2 mph over the predictions from the 'EXISTING' and 'BASE' configurations is believed to be unreal and within the expected scatter in the predictions.

Of the remaining 68 stations, 25 are in Melbourne's Category 3, 34 in Category 4, and 9 in Category 5. The average predicted wind speed for all 78 stations for the 'PROPOSED' configuration is 14.8 mph which is 1.9 mph higher than for the 'EXISTING' configuration and 1.2 mph higher than for the 'BASE' configuration. If just the 11 stations along the Harborwalk between and in the vicinity of the north and east corners (75, 43, 44, 45, 46, 47, 48, 54, 76, 64, and 63) are considered, the average predicted wind speed for the 'PROPOSED' configuration is 21.2 mph, whereas for the 'EXISTING' and 'BASE' configurations it was 14.6 and 16.0 respectively. Thus about half of the increase in the average predicted wind speed for all stations occurs at these 11 stations.

Examination of the direction data in Table A10 for these same 11 stations indicates that for all but station 75 and perhaps 43 the most important directions are in the NE quadrant. Thus, while the length of the Harborwalk between and near the north and east corners will be very windy when the wind is from the NE, it will be quite comfortable at other times. Since in many cases it will also be raining or snowing when the wind is from the NE, it would seem that this windiness will not significantly effect the usefulness of the Harborwalk.

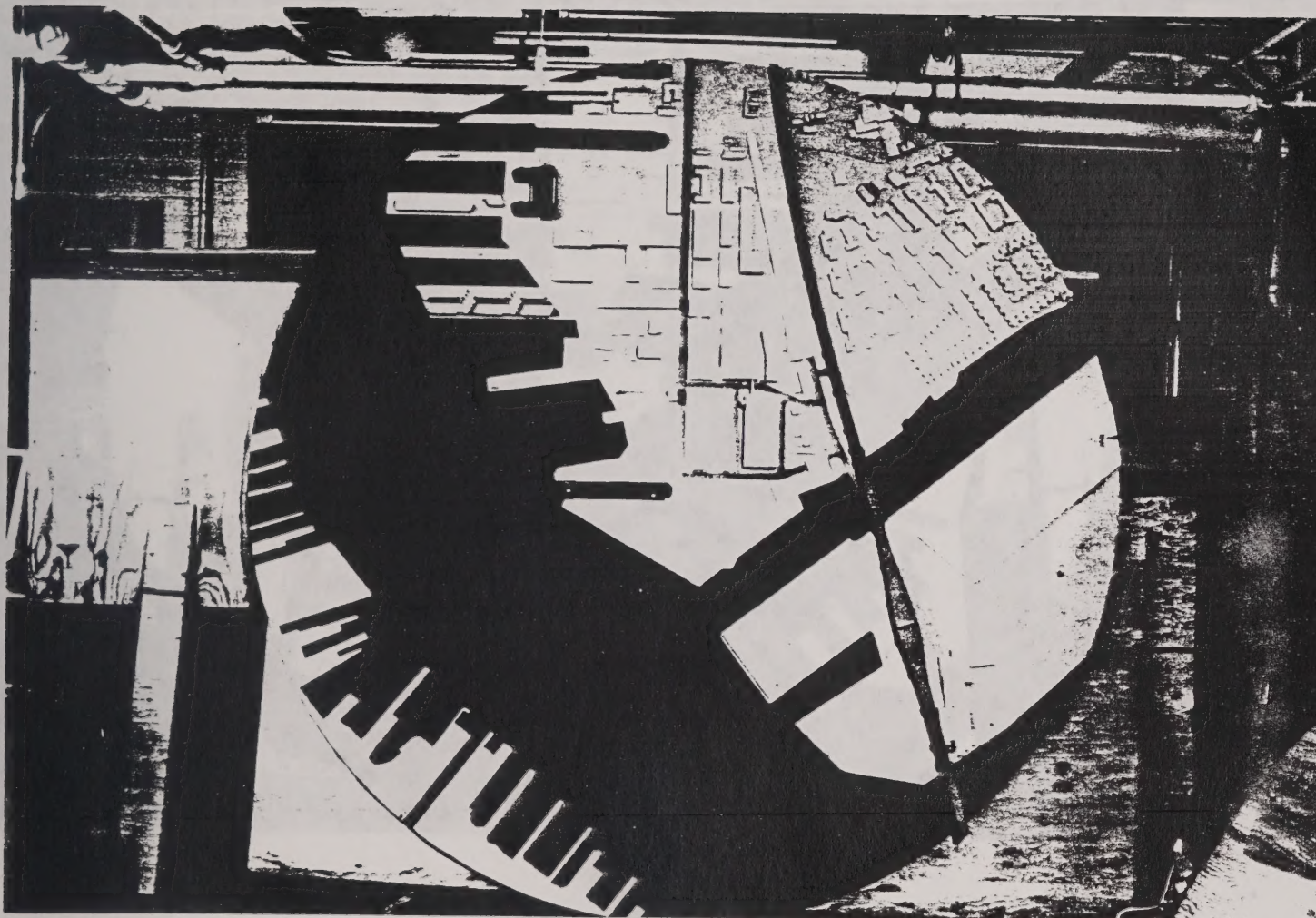
7.4 THE ALTERNATIVE CONFIGURATION

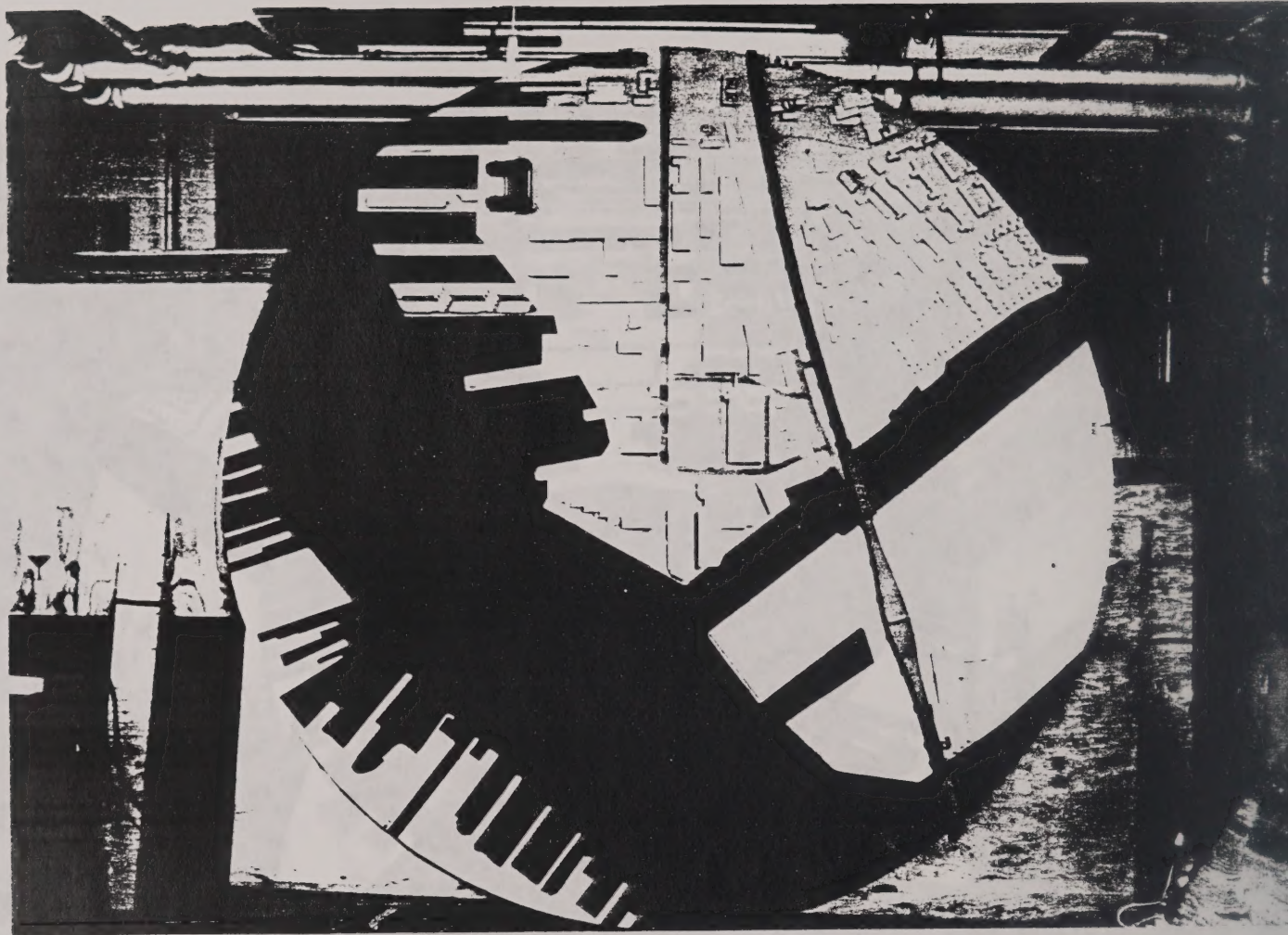
The results for the 'ALTERNATIVE' configuration are presented in Table 4 and on the maps of the site in Figures 9 and 13. Again for this configuration predicted winds at a total of 5 stations (43, 44, 48, 75, and 76) exceed the BRA guideline wind speed. All of these stations are in the same two relatively small areas as for the 'PROPOSED' configuration. 43, 44, and 75) are near the north corner of the Harbor walk and 48 and 76 near the east corner. All of these are in Melbourne Categories 2. Winds at 2 additional stations (54 and 64) have predicted winds in Melbourne's Category 2, but do not exceed the BRA guideline wind speed.

Of the remaining 71 stations, 21 are in Melbourne's Category 3, 30 in Category 4, and 20 in Category 5. The average predicted wind speed for all 78 stations for the 'ALTERNATIVE' configuration is 13.9 mph which is 1.0 mph higher than for the 'EXISTING' configuration, 0.3 mph higher than for the 'BASE' configuration, and 0.9 mph less than for the 'PROPOSED' configuration. Again if just the 11 stations along the Harborwalk between and in the vicinity of the north and east corners (75, 43, 44, 45, 46, 47, 48, 54, 76, 64, and 63) are considered, the average predicted wind speed for the 'ALTERNATIVE' configuration is 19.9 mph, where as for the 'EXISTING', 'BASE', and 'PROPOSED' configurations it was 14.6, 16.0, and 21.2 mph respectively. Thus both overall and in this area the 'ALTERNATIVE' configuration is predicted to be somewhat less windy than the 'PROPOSED' configuration.

Again examination of the direction data in Table A10 for these same 11 stations indicates that for all but station 75, the most important directions are in the NE quadrant. Thus, as was the case for the 'PROPOSED' configuration, while the length of the Harborwalk between and near the north and east corners will be very windy when the wind is from the NE, it will be quite comfortable at other times.







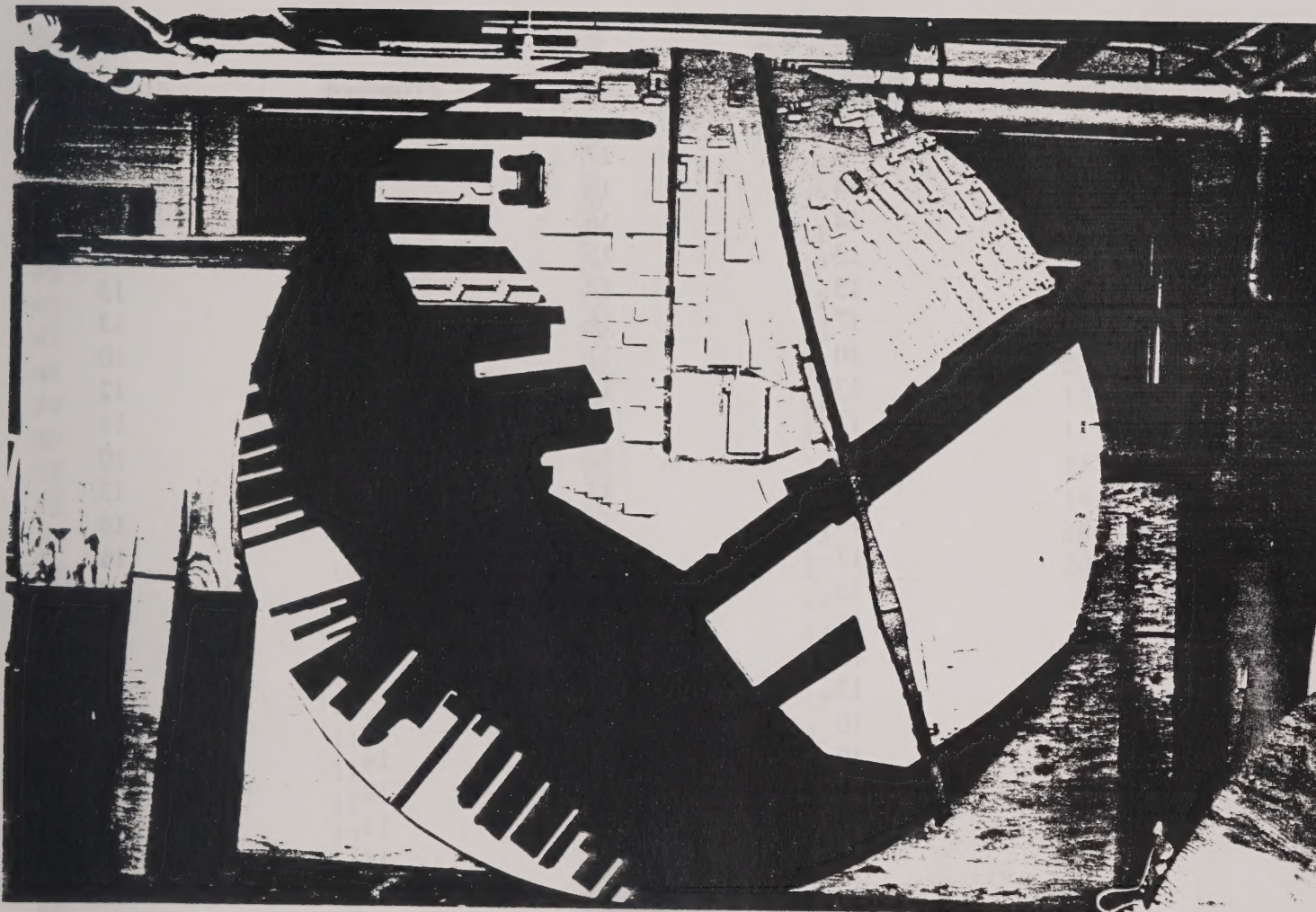


Table __

Equivalent Average Velocity (MPH)

<u>Ground Station</u>	<u>Existing</u>	<u>Base</u>	<u>Proposed</u>	<u>Alternative</u>
1	17	17	19	17
2	14	15	17	16
3	14	16	16	14
4	13	15	13	11
5	13	13	13	13
6	17	16	14	13
7	10	11	12	10
8	13	13	13	12
9	12	12	11	11
10	12	12	9	10
11	13	14	12	13
12	14	14	13	14
13	17	14	16	16
14	13	11	9	8
15	11	12	9	8
16	11	11	9	8
17	12	11	9	8
18	10	15	15	12
19	10	14	14	13
20	10	13	12	11
21	10	13	12	10
22	11	17	18	14
23	11	13	13	15
24	13	14	12	10
25	17	17	13	14
26	15	16	12	12
27	12	12	14	12
28	12	12	14	14
29	12	10	12	11
30	11	11	14	15
31	11	10	14	11
32	12	10	12	12
33	12	10	8	10
34	12	18	18	15
35	13	15	16	13
36	15	14	15	12
37	11	15	15	15
38	13	18	18	15
39	14	17	16	16
40	15	16	15	14

Equivalent Average Velocity (MPH)

<u>Ground Station</u>	<u>Existing</u>	<u>Base</u>	<u>Proposed</u>	<u>Alternative</u>
41	16	14	14	13
42	16	17	16	15
43	14	20	22	24
44	13	17	21	24
45	13	16	19	17
46	15	13	15	16
47	15	13	16	15
48	14	14	21	22
49	11	11	11	11
50	12	10	14	11
51	12	11	13	11
52	13	11	12	14
53	14	12	15	16
54	14	15	27	20
55	11	11	14	10
56	10	10	14	14
57	11	10	14	15
58	11	10	15	15
59	11	9	12	15
60	11	11	17	13
61	12	12	16	14
62	12	11	15	14
63	16	14	19	17
64	16	14	22	19
65	11	14	14	12
66	12	16	17	17
67	15	14	15	15
68	8	14	14	13
69	8	11	11	10
70	13	14	14	13
71	13	12	14	12
72	15	14	16	14
73	14	13	13	13
74	15	16	17	16
75	14	25	25	24
76	17	15	27	23
77	10	14	16	14
78	14	14	12	10

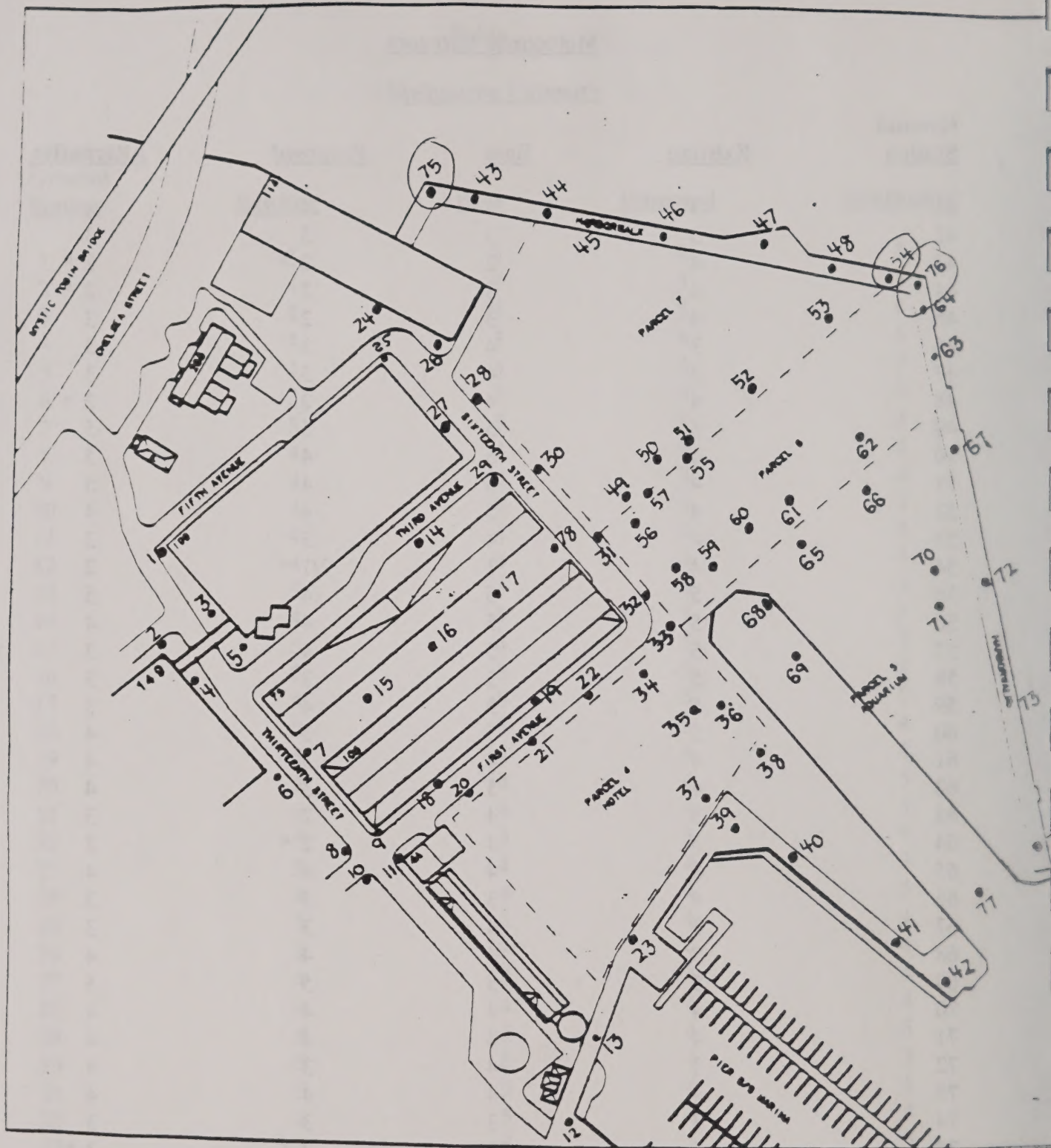
Table —

Melbourne Category

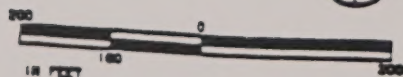
<u>Ground Station</u>	<u>Existing</u>	<u>Base</u>	<u>Proposed</u>	<u>Alternative</u>
1	3	3	2	3
2	4	3	3	3
3	4	3	3	4
4	4	3	4	5
5	4	4	4	4
6	3	3	4	4
7	5	5	4	5
8	4	4	4	4
9	4	4	5	5
10	4	4	5	5
11	4	4	4	4
12	4	4	4	4
13	3	4	3	3
14	4	5	5	5
15	5	4	5	5
16	5	5	5	5
17	4	5	5	5
18	5	3	3	4
19	5	4	4	4
20	5	4	4	5
21	5	4	4	5
22	5	3	3	4
23	5	4	4	3
24	4	4	4	5
25	3	3	4	4
26	3	3	4	4
27	4	4	4	4
28	4	4	4	4
29	4	5	4	5
30	5	5	4	3
31	5	5	4	5
32	4	5	4	4
33	4	5	5	5
34	4	3	3	3
35	4	3	3	4
36	3	4	3	4
37	5	3	3	3
38	4	3	3	3
39	4	3	3	3
40	3	3	3	4

Melbourne Category

<u>Ground Station</u>	<u>Existing</u>	<u>Base</u>	<u>Proposed</u>	<u>Alternative</u>
41	3	4	4	4
42	3	3	3	3
43	4	2	2 *	2 *
44	4	3	2	2 *
45	4	3	2	3
46	3	4	3	3
47	3	4	3	3
48	4	4	2	2 *
49	5	5	5	5
50	4	5	4	5
51	4	5	4	5
52	4	5	4	4
53	4	4	3	3
54	4	3	2/1 *	2
55	5	5	4	5
56	5	5	4	4
57	5	5	4	3
58	5	5	3	3
59	5	5	4	3
60	5	5	3	4
61	4	4	3	4
62	4	5	3	4
63	3	4	2	3
64	3	4	2 *	2
65	5	4	4	4
66	4	3	3	3
67	3	4	3	3
68	5	4	4	4
69	5	5	5	5
70	4	4	4	4
71	4	4	4	4
72	3	4	3	4
73	4	4	4	4
74	3	3	3	3
75	4	2*	2 *	2 *
76	3	3	2/1 *	2 *
77	5	4	3	4
78	4	4	4	5

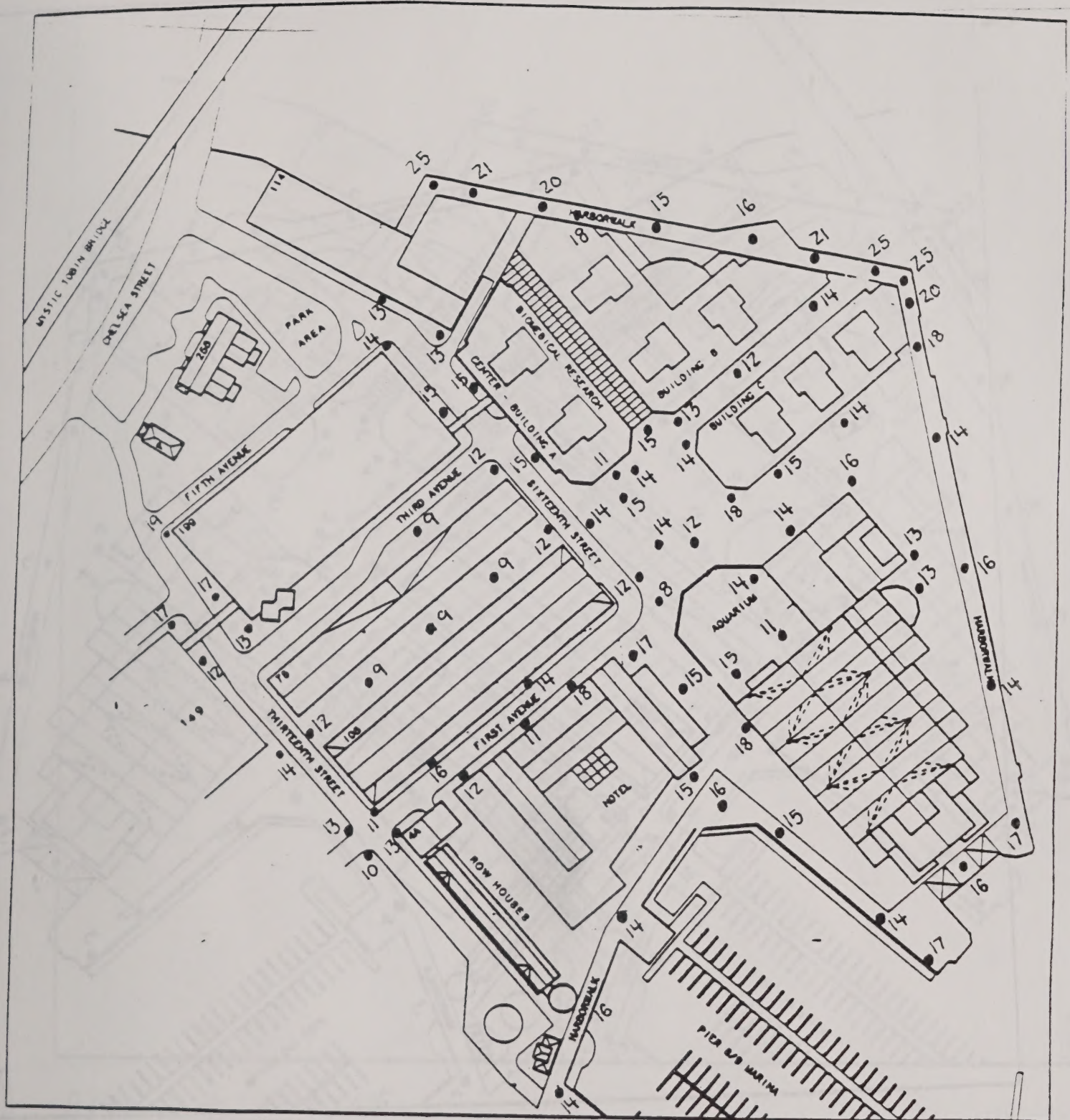


Wind Stations



← Local Wind Direction

Charlestown Navy Yard
Biomedical Research Center
Building A, Wind Assessment
Prepared By: Frank H. Durgin, P.E.

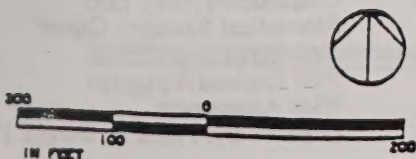


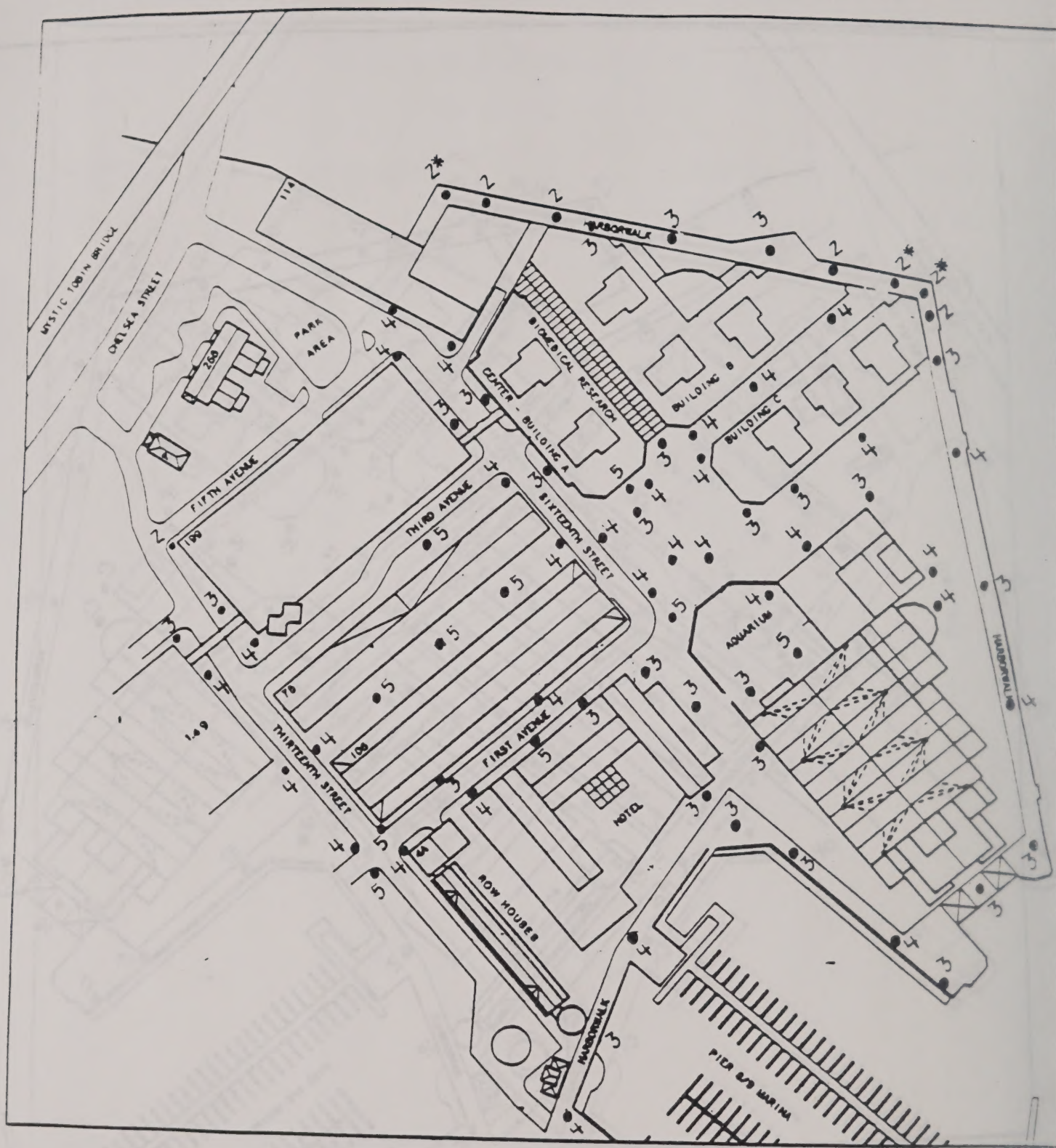
Proposed Conditions

est. 10%
clearance

Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin, P.E.

on an annual basis

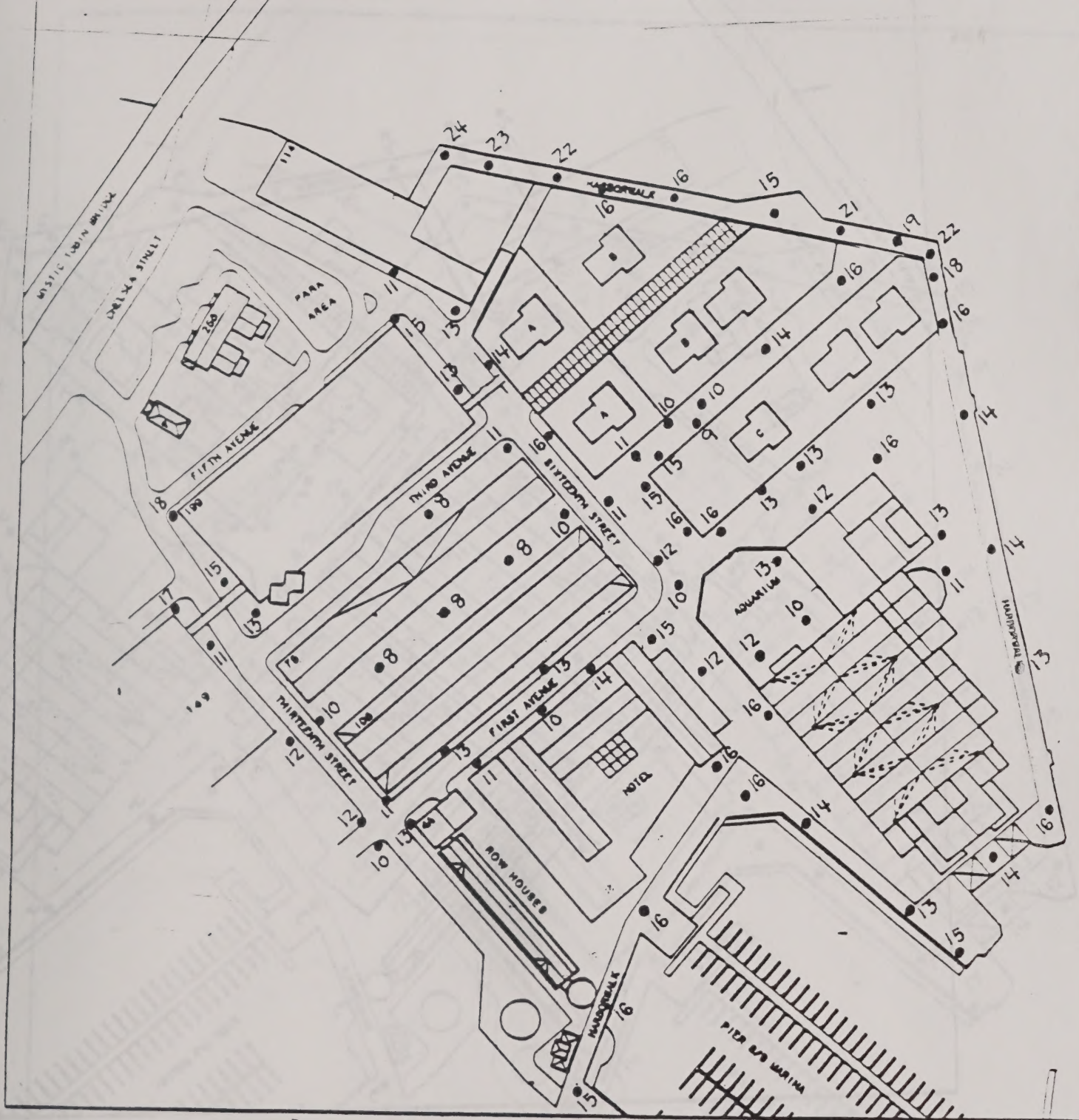




Proposed Conditions

*Melbourn
Carter*

Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin, P.E.



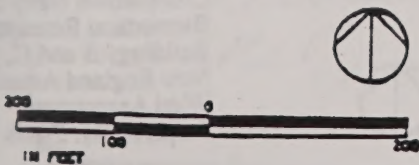
Alternate Project

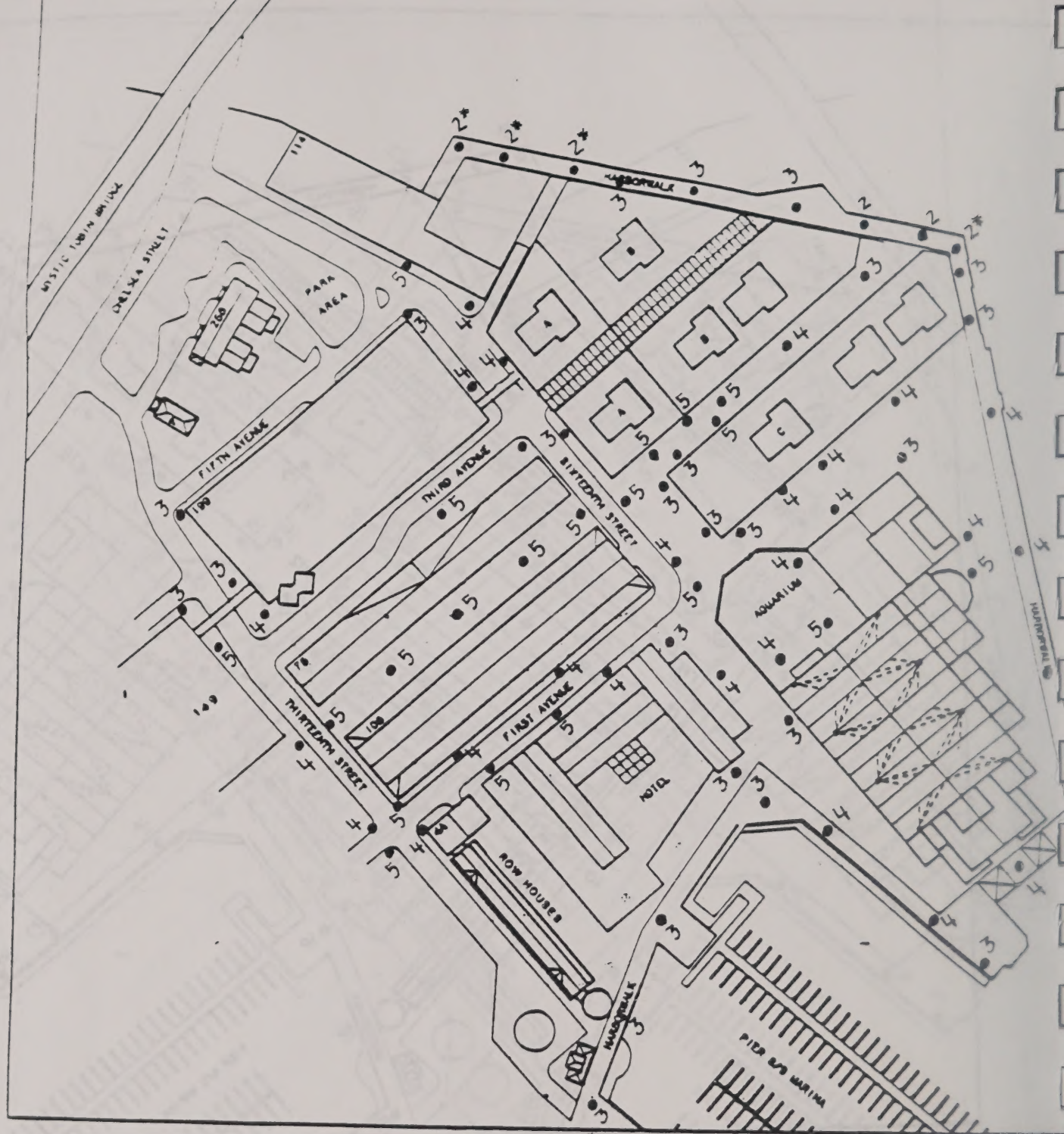
est 1970

excellence

Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin, P.E.

*on an
annual basis*

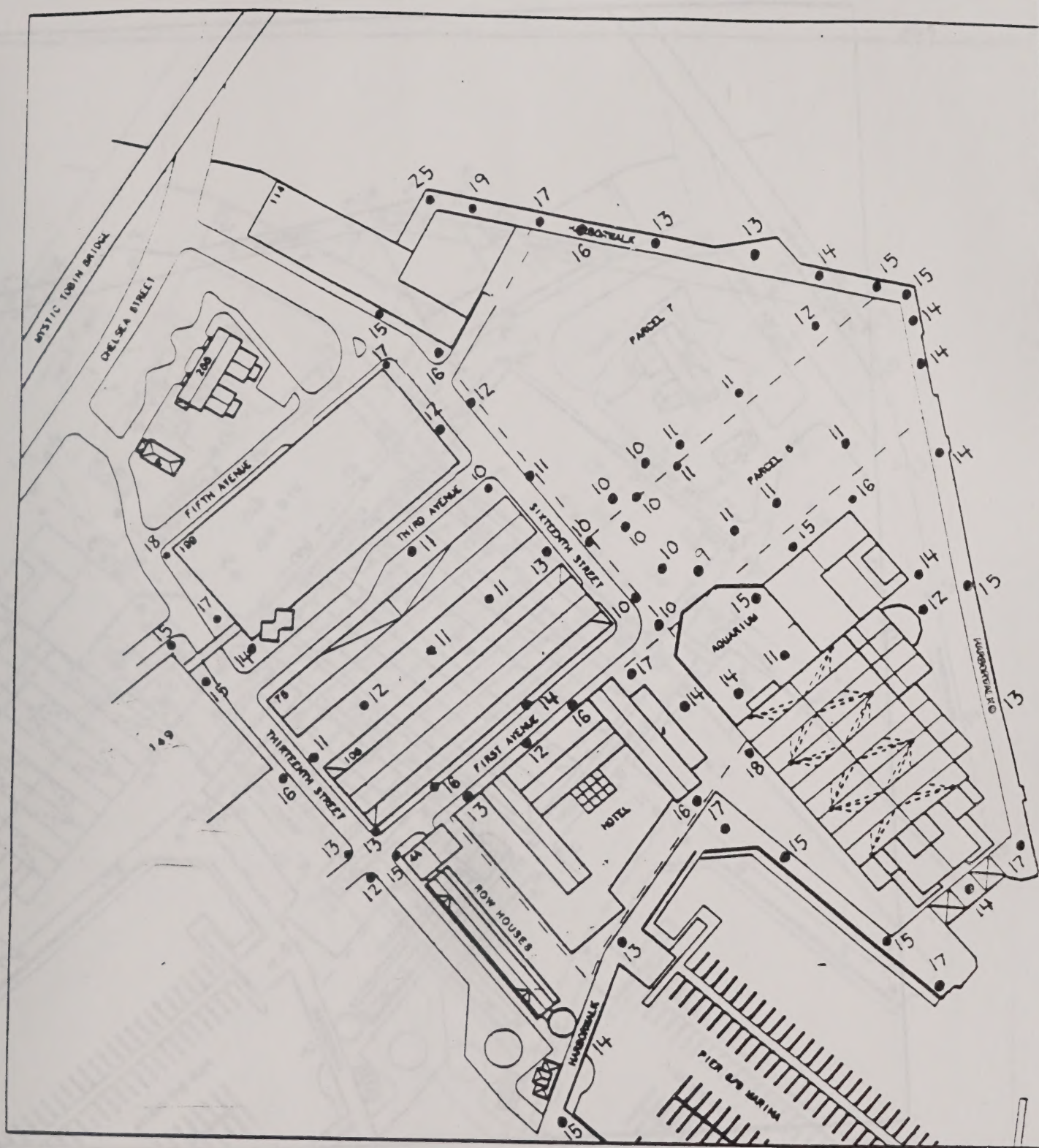




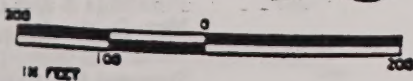
Alternate Project

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Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin



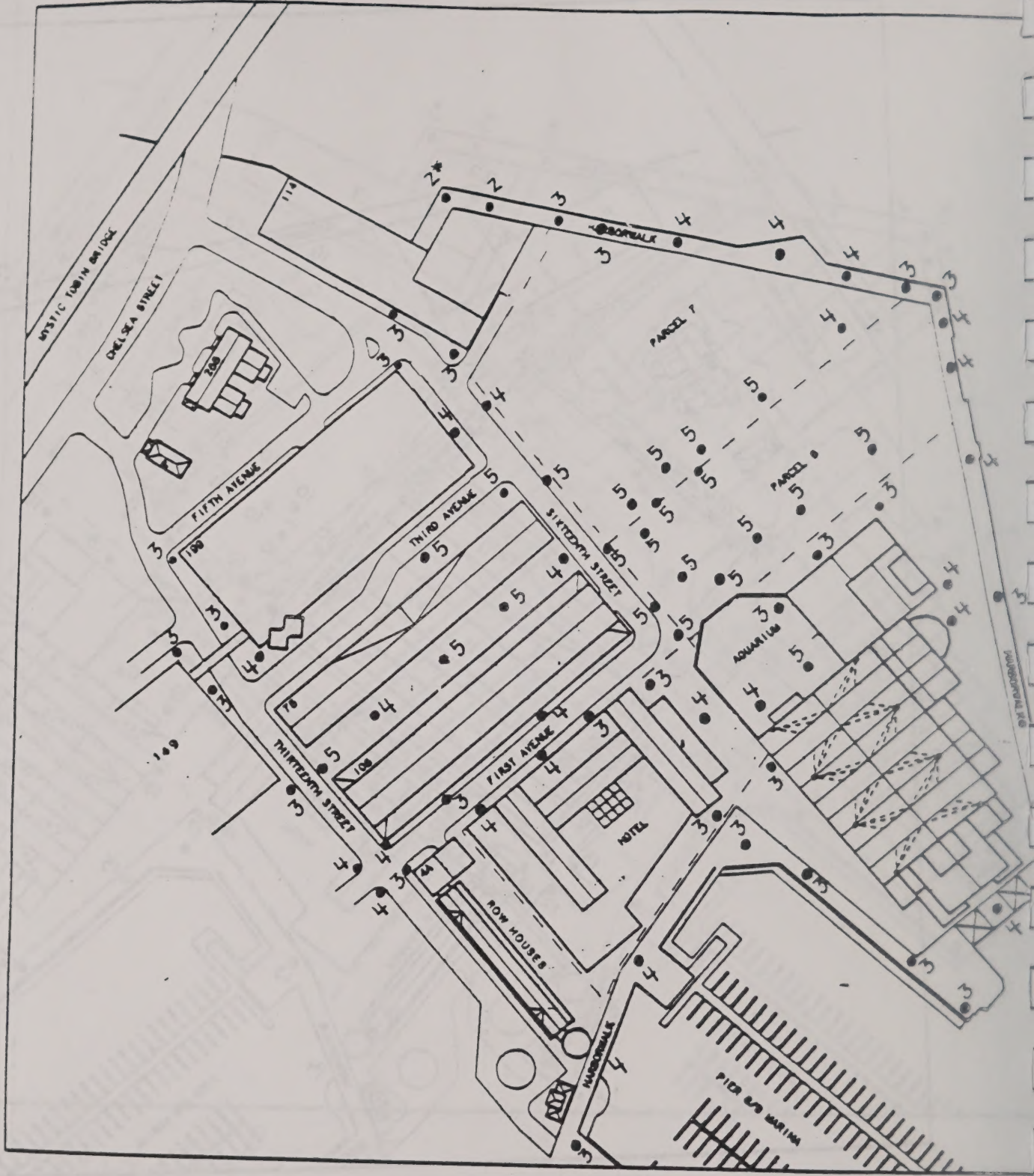
One includes
the Aug. 14 addition,
(NEAG + the hotel)



est. 190
exceedance

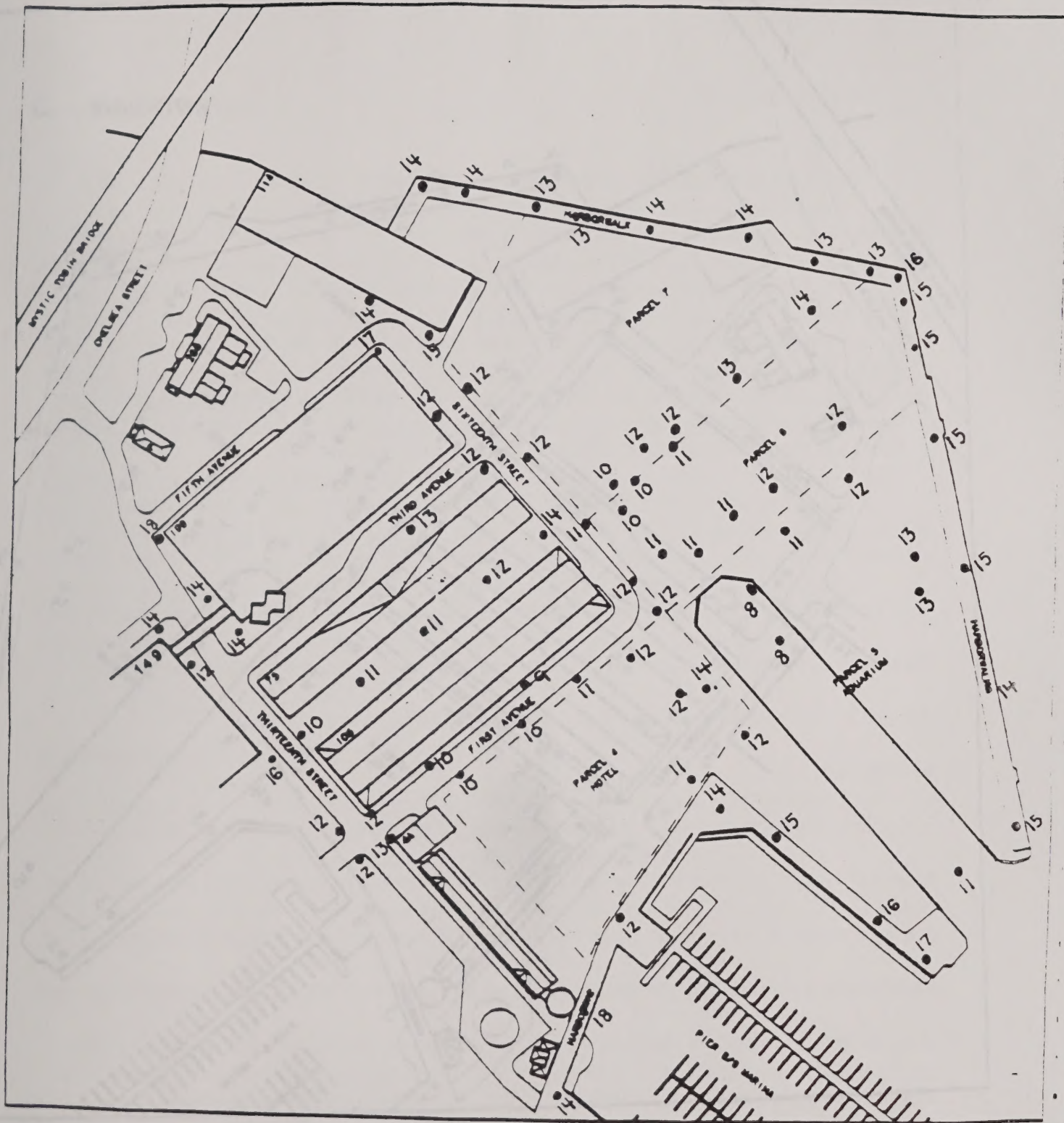
base
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Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin, P.E.



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Charlestown Navy Yard
Biomedical Research Center
Buildings B and C, and
New England Aquarium
Wind Assessment
Prepared By: Frank H. Durgin

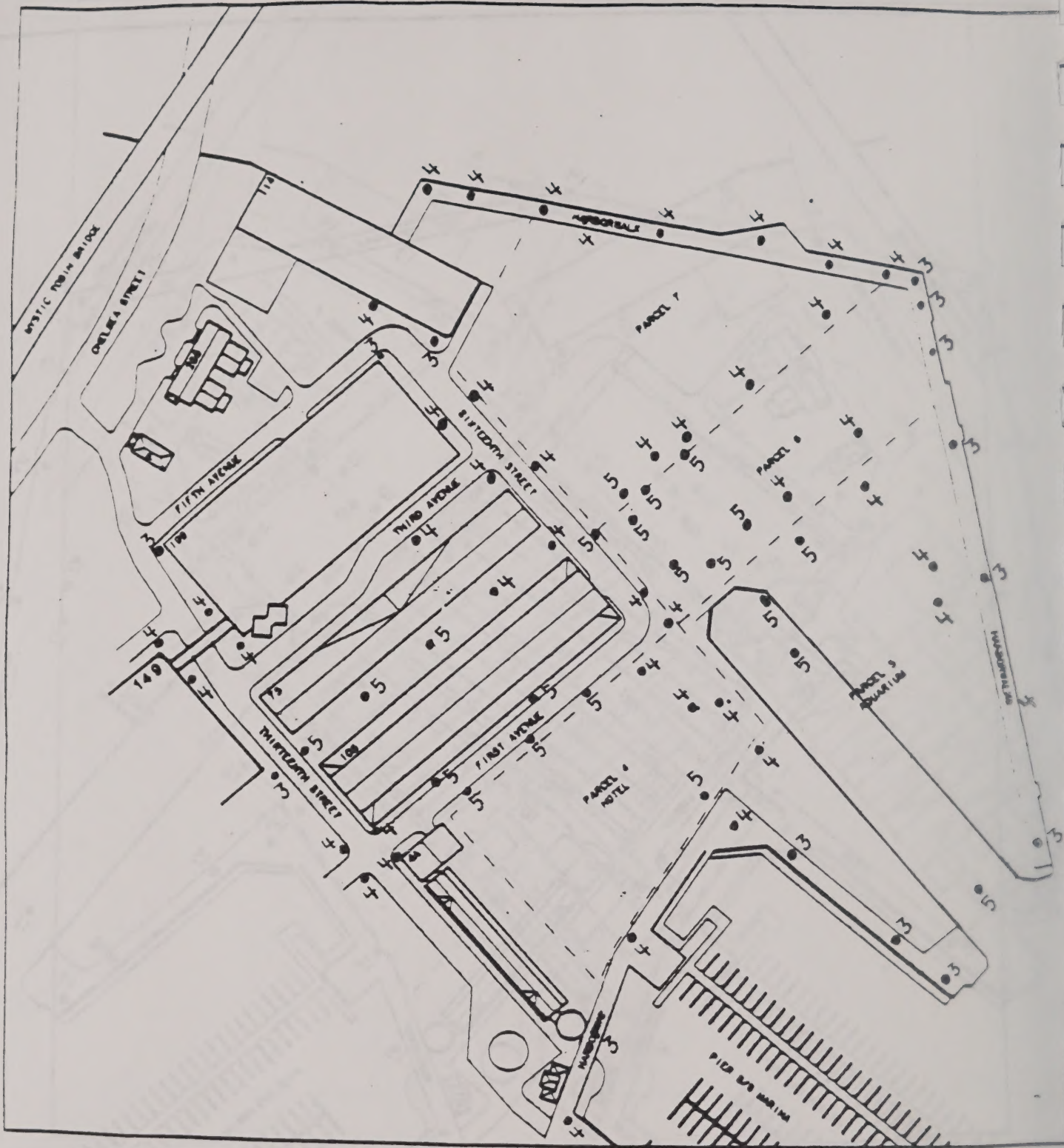


Existing conditions

1990

← Local Wind Direction

Charlestown Navy Yard
Biomedical Research Center
Building A. Wind Assessment
Prepared By: Frank H. Durgin, P.E.



*Existing
conditions
Melbourne*

Charlestown Navy Yard
Biomedical Research Center
Building A. Wind Assessment
Prepared By: Frank H. Durgin, P.E.

1. Introduction

This study addresses the shadow impacts produced by Buildings B and C of the Biomedical Research Center proposed for Parcels 6 and 7 in the Charlestown Navy Yard. Both the Proposed Project configuration and the Alternative are included in this analysis. The study focuses on a comparison of the impact of these buildings on pedestrian and open space areas in the vicinity, including the Harborwalk, Yard's End Plaza, and the pedestrian walkways along Sixteenth Street, Second Avenue, and First Avenue.

Shadow impacts on that portion of Harborwalk along the Little Mystic Channel are also evaluated in this study. It should be noted, however, that the approved 1978 Master Plan for the Charlestown Navy Yard did not include any Harborwalk along the Little Mystic Channel. Nonetheless, the environmental impacts on this portion of Harborwalk are evaluated and mitigation studied accordingly. Thus, this study goes beyond that required under the 1978 Master Plan.

The length and location of shadows produced by a building are dependent upon the building's height and massing, its location, and the location of nearby structures, as well as the topography of the area, the time of day, and the sun's position relative to the earth. The criterion for establishing impact is whether a pedestrian thoroughfare, public open space, park, or plaza area is subject to shadows cast by the proposed development for an unacceptable length of time during the day. However, the presence of shadows is, to some extent, subjective in nature. While shadows falling on an open space or walkway frequented by pedestrians may lead to uncomfortable conditions on a cold winter day, the same shading occurring on a hot, humid, summer day could be welcome and desirable.

2. Base Conditions

The base condition assumed for purposes of this analysis includes Buildings #114, #199, #75, #106, and the Bricklayers Housing as well as Building A of the Biomedical Research Center, an addition to Building #114, the New England Aquarium, and the hotel on Parcel 4. According to phasing plans for the buildout of the Yard's End area of the Navy Yard, all of these buildings will be completed or underway when Buildings B and C are built. Therefore, they are all included as the base condition for the analysis.

The Proposed Project is part of the Charlestown Navy Yard Redevelopment Plan. The Alternative is a variation of a parallel massing configuration studied in early 1990 for Parcels 6 and 7. Building B is attached to Building A under both scenarios.

Pedestrian Walkways and Open Space Areas Studied

- o Harborwalk - a continuous pedestrian walkway along the waterfront providing a pedestrian link between the U.S.S. Constitution, the Aquarium and other Navy Yard uses, and extending to the perimeter of the Little Mystic Channel.
- o Yard's End Plaza - a park space and plaza located in front of Building C, at the end of First Avenue on Parcel 6.
- o Sixteenth Street - a secondary auto and pedestrian route beginning at Gate 6 on Chelsea Street.
- o Second Avenue - a major pedestrian axis for the Navy Yard starting at Fifth Street and extending to the Biomedical Research Center and Yard's End Plaza.
- o First Avenue - the major auto and pedestrian spine of the Navy Yard, connecting the National Historical Park with the Yard's End.

3. Methodology

Shadows were projected for Buildings B and C on four days of the year: March 21, June 21, September 21, and December 21 to establish a representative view of shadow impacts through the four seasons. In order to understand the movement of shadows throughout the day, shadows were diagrammed for the morning (9 am), noon (12 pm), and afternoon (3 pm). In addition, the time of 1 pm was also studied for the months between March and September to compare shadow impacts on Harborwalk along the Little Mystic Channel.

Solar time was used to calculate the altitude and azimuth of the sun for each time, using geographical data about Charlestown (42°-23' N latitude, 71°-03' W longitude), the day length effects of the elliptical nature of the earth's rotation around the sun, and Daylight Savings Time. These factors result in solar time that can differ from clock time by thirty minutes or more. Daylight Savings Time was taken into account for June, April/August, May/July, and September shadow calculations.

Graphics show Proposed Project shadows and Alternative shadows and are intended to give a general understanding of the shadow impacts associated with the two developments. All graphics are oriented with north at the top of the page.

4. Impacts of the Proposed Project and the Alternative

March 21 is the Vernal Equinox, the mid-point in the year when day and night are equivalent in length.

March 21/9:00 AM (EST). (See Figures)

Under both the Proposed and Alternative conditions, shadows from Buildings B and C will be cast on nearly the entire length of the northernmost segment of the Harborwalk as it is in most of the fall and winter. This is primarily due to the northeastern orientation of Harborwalk and not as a direct result of building height. A 55-foot tall building on this site would have similar effects.

Building C casts a shadow on the Second Avenue corridor, a condition exacerbated by the Alternative which shadows a greater length of the corridor.

March 21/12:00 Noon (EST). (See Figures)

In both conditions, the northernmost section of the Harborwalk continues to be in shadow at this hour. A small triangle of sun appears near the corner of Building B. Second Avenue is shadowed for a greater distance under the Alternative.

March 21/3:00 PM (EST). (See Figures and)

At this hour, virtually all of the northern and some eastern sections of the Harborwalk are in shadow. Second Avenue continues to be impacted this time by Buildings A and B; this condition is worse under the Alternative. First Avenue is impacted by Building C, a condition which is extended by the greater length of the Alternative.

June 21 is the longest day of the year when shadows are shorter than at any other time.

June 21/9:00 AM (DST). (See Figures and)

Shadows will be cast by Building C on the Second Avenue Corridor and Yard's End Plaza. This condition is exacerbated in the Alternative because of the greater length of Building C. This is the one time of the year when shadows are not cast on the northern section of the Harborwalk.

June 21/12:00 Noon (DST). (See Figures and)

The Alternative shadows the entire north section of Harborwalk, except for a small wedge representing the open corridor between Buildings B and C. The Proposed Project casts far less shadow on portions of the northernmost section of Harborwalk. Second Avenue is shadowed by Building C; the Alternative increases the area shadowed.

June 21/3:00 PM (DST). (See Figures and)

While the Alternative continues to cast shadows on the northernmost section of the Harborwalk at this hour, the Proposed Project permits sunlight on the site of the Working Port Viewing Area stop of the Double Interpretive Loop.

Second Avenue remains impacted but a small linear band of sunlight appears along the north side of Building C. First Avenue is somewhat impacted on its northern edge; this impact is heightened by the greater length of the Alternative.

September 21 is the Autumnal Equinox; however, because Daylight Savings Time is in effect, shadows are somewhat longer than they are at the same hour on the Vernal Equinox.

September 21/9:00 AM (DST). (See Figures and)

Shadows will be cast from Buildings B and C on nearly the entire length of the northernmost section of the Harborwalk. Building C will cast shadow on Second Avenue and the edge of Yard's End Plaza. This condition continues for a greater distance under the Alternative shading almost half of Yard's End Plaza.

September 21/12:00 Noon (DST). (See Figures and)

The northern section of the Harborwalk is in shadow at this hour. Shadows continue to exist on the Second Avenue corridor, again, for a greater distance under the Alternative.

September 21/3:00 PM (DST). (See Figures and)

The northern section of the Harborwalk continues in shadow at this hour, as are small portions of the eastern section of the Harborwalk. The sun aligns with Second and First Avenues and thus virtually no shadows are cast in these areas at this hour.

December 21 is the Winter Solstice when days are shortest, shadows longest, and outdoor activity is generally at a minimum.

December 21/9:00 AM (EST). (See Figures and)

As at most other times of the year, the northern section of the Harborwalk and Second Avenue are in shadow at this hour. Second Avenue is shadowed for a greater distance under the Alternative.

December 21/12:00 Noon (EST). (See Figures and)

The northern section of the Harborwalk and Second Avenue continue in shadow as above.

December 21/3:00 PM (EST). (See Figures and)

All of the northern and eastern sections of the Harborwalk will be in shadow at this hour, except for a small swath of sunlight allowed by the open corridor between Buildings B and C.

April 16/August 27. Shadows are the same length on these two days of the year, one in spring and one in summer, spaced equally on either side of the Summer Solstice in June.

April 16/August 27/1:00 PM (DST). (See Figures and)

Shadows are cast along most of the northern section of Harborwalk at this time under both conditions. A small triangle of sunlight appears to the north of Building B in the Proposed Project. Second Avenue is partially sunlit along the length of Building B. This band of sun continues through Harborwalk. Yard's End Plaza is in sunlight.

May 20/July 23. Shadows are the same length (shorter than in April/August) on these two days of the year, one in spring and one in summer, spaced equally on either side of the Summer Solstice in June.

May 20/July 23/1:00 PM (DST). (See Figures and)

The Proposed Project allows a band of sunlight approximately 100 feet in length along the northern section of Harborwalk, including a portion of the Working Port Viewing Area. The Alternative casts shadows along the length of Harborwalk in this area shading the Working Port Viewing Area completely.

Second Avenue is predominantly sunlit under both conditions, and this band of sun continues through to Harborwalk.

Conclusions

Shadows cast by Buildings B and C of the Biomedical Research Center will put the northernmost section of the Harborwalk in shadow most days of the year. However, the Proposed Project allows sun for several hours almost half of the year along some portions of Harborwalk near its L-shaped notch.

Building C casts shadows along the Second Avenue corridor until mid to late afternoon. Because Building C is longer in the Alternative case, this condition is always worse for this case. Building B shadows Second Avenue in the late afternoon most months of the year.

However, impacts on Second and First Avenues are no greater than they would be under the heights allowed by the 1978 Master Plan.

The area of sun is much greater in the Yard's End Plaza created under the Proposed Project. (See, for example, Figures __ and __). Furthermore, the Yard's End Plaza remains very sunny most hours of the day except in the early morning hours and during winter months.

There are no shadow impacts on Sixteenth Street from Buildings B and C.

The comparisons between the Proposed Project and the Alternative for Building B and C demonstrate that direct sunlight conditions are improved by the Proposed Project, particularly along Harborwalk and Second Avenue.

5. Mitigation Measures

The pedestrian area that will be significantly impacted by shadow is the northernmost end of Harborwalk. Since this end is not expected to be an area of high activity, and since even a one-story building in this location would cause similar results, this impact seems inevitable. As stated previously, the Proposed Project mitigates this impact by providing direct solar access for periods of time throughout almost half the year. The notching and shorter length of Building C under the Proposed Project also lessens any perceived shadow impacts along the Second and First Avenue corridors.

Significantly, the shorter configuration of Building C under the Proposed Project creates a major public plaza which is sunlit and enjoyable most hours of the day.

Of secondary importance are the entry areas of the Biomedical Research Center off of Yard's End Plaza and Second Avenue. While shadows on the northern side of any building are to be expected and changes in building design are not appropriate, it will be important during the winter mornings to keep the entry walkways and the Second Avenue pedestrian mall free of ice because the sun will not have a chance to melt it.

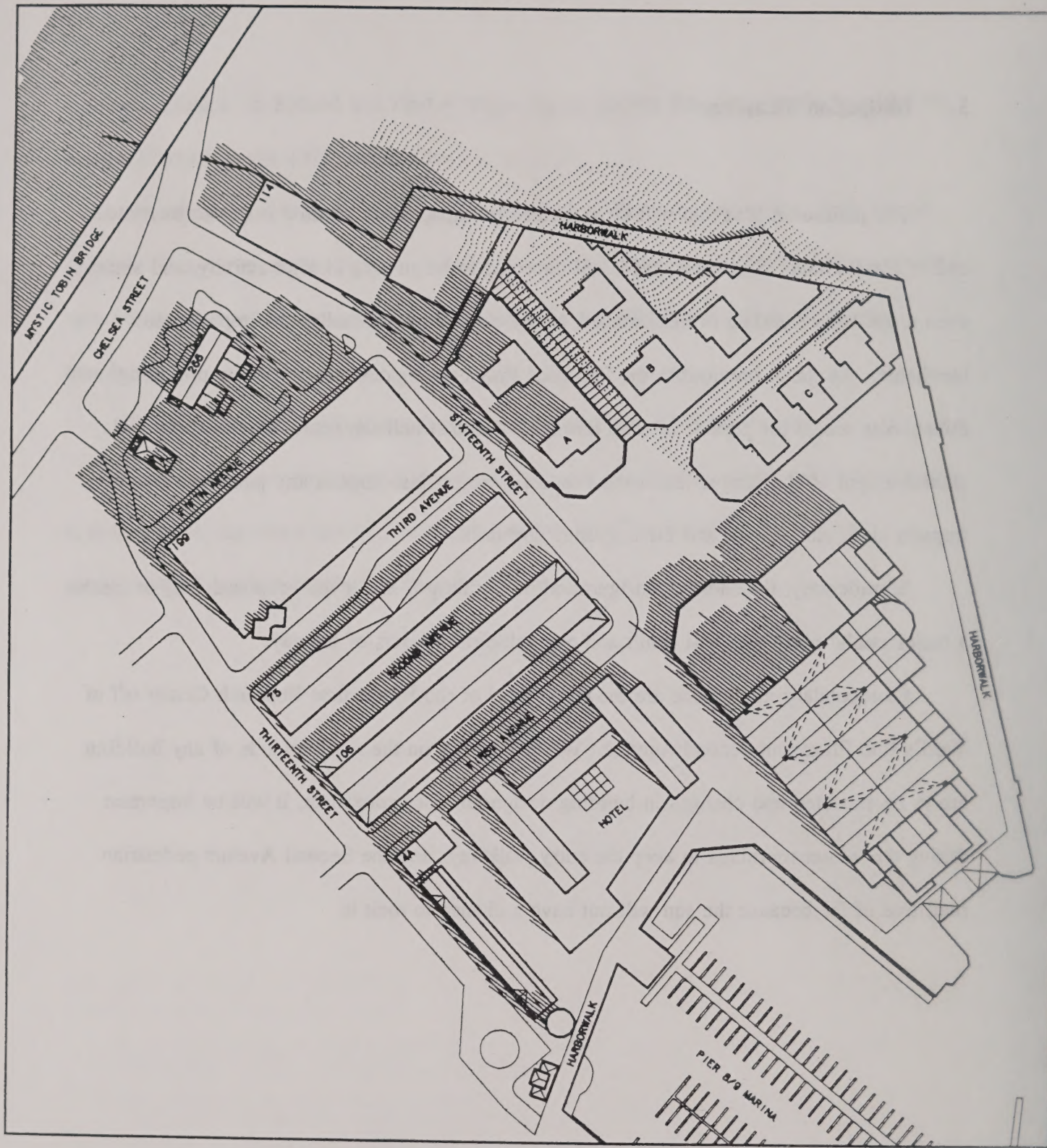
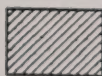


FIGURE: 1 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

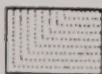
MARCH 21, 9:00 AM
 BEARING: 127
 ALTITUDE: 33



200 0 200 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

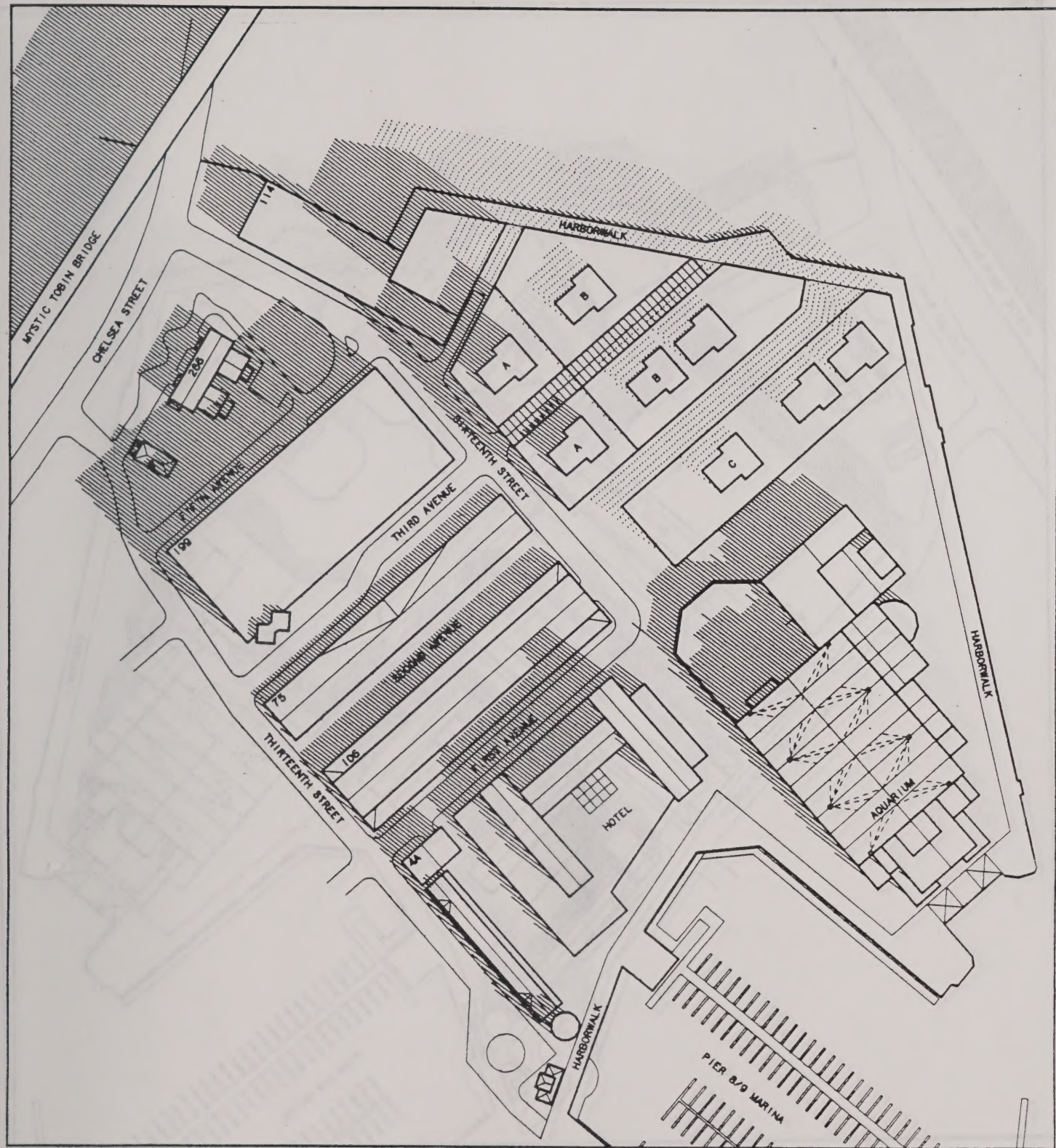


FIGURE: 2 ALTERNATIVE PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

MARCH 21, 9:00 AM
 BEARING: 127
 ALTITUDE: 33

BASE CONDITION SHADOWS

NET NEW SHADOWS (BIOMEDICAL BUILDING)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

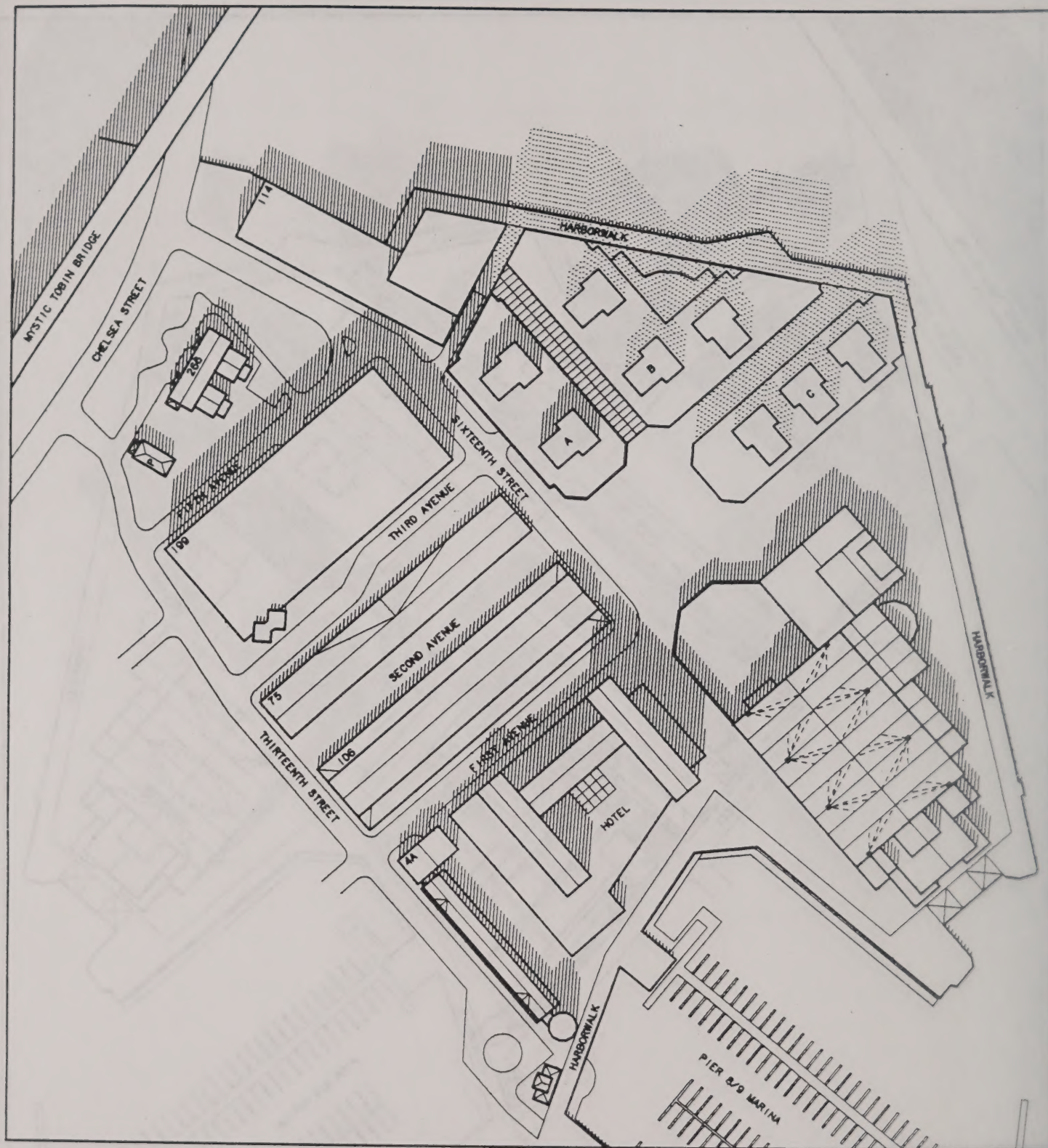
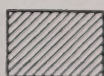


FIGURE: 3 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

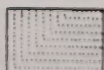
MARCH 21, 12:00 PM
 BEARING: 184
 ALTITUDE: 48



200 0 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
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 8 APRIL 1992

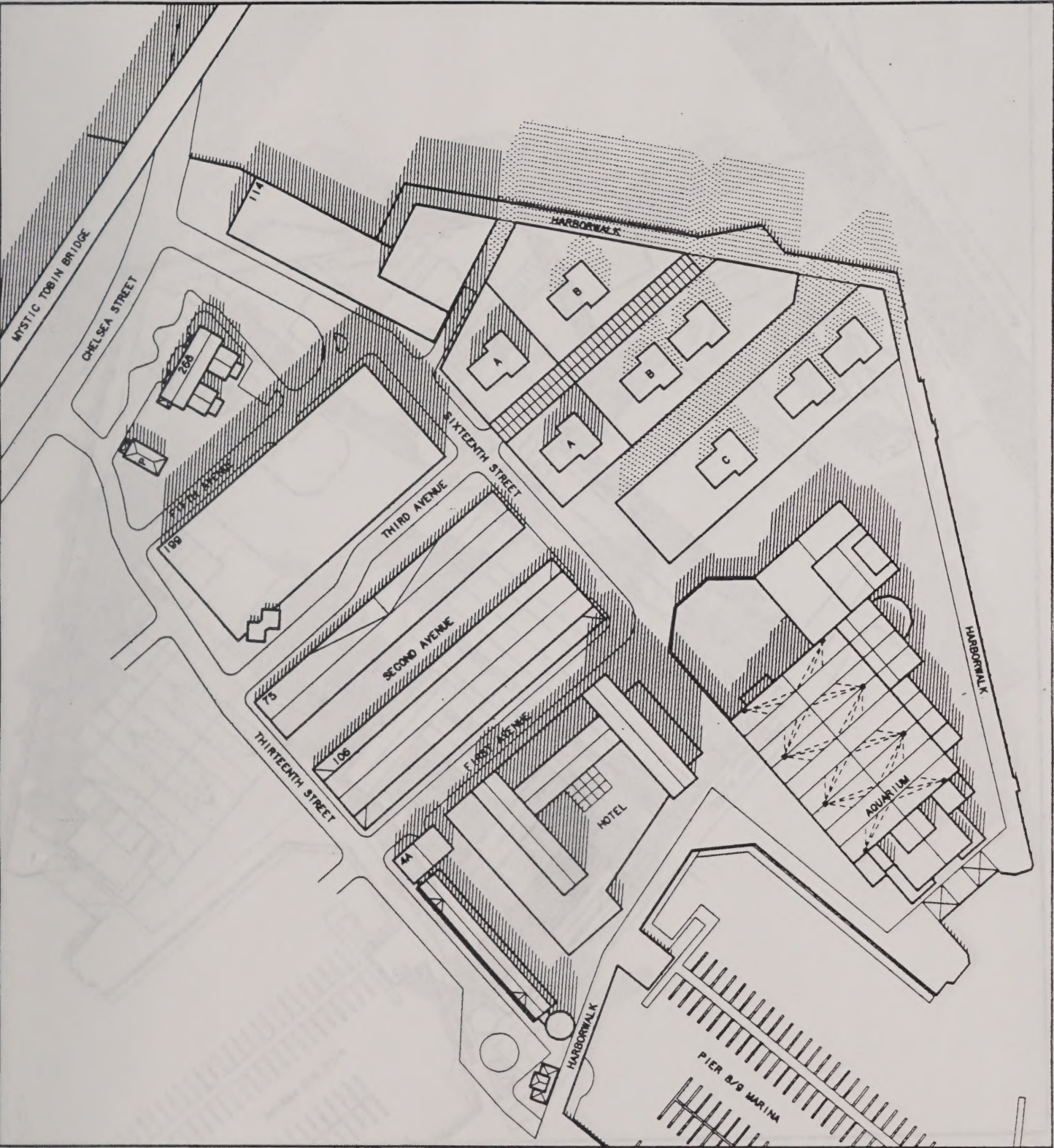
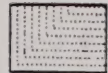


FIGURE: 4 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

MARCH 21, 12:00 PM
 BEARING: 184
 ALTITUDE: 48

200 0 200
 IN FEET

 BASE CONDITION SHADOWS

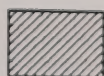
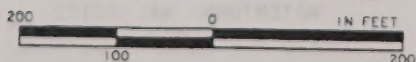
 NET NEW SHADOWS (BIOMEDICAL BUILDING)

PREPARED BY:
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 8 APRIL 1992

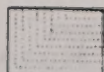


FIGURE: 5 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

MARCH 21, 3:00 PM
 BEARING: 238
 ALTITUDE: 30



BASE CONDITION
 SHADOWS



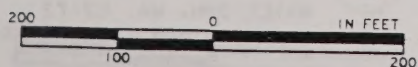
NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

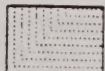


FIGURE: 6 ALTERNATIVE PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

MARCH 21, 3:00 PM
 BEARING: 238
 ALTITUDE: 30



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

PREPARED BY:
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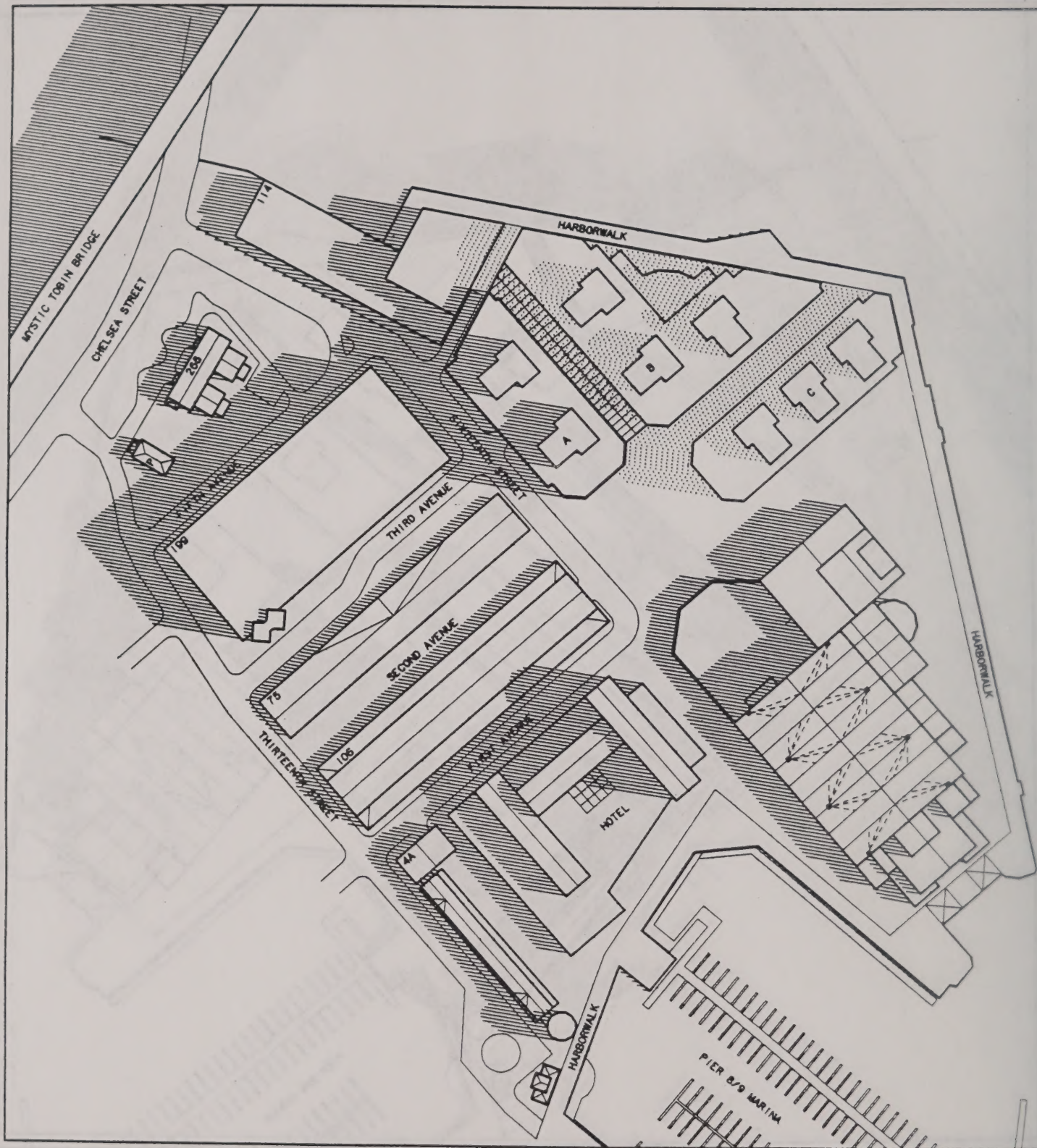
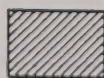


FIGURE: 7 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

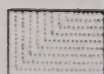
JUNE 21, 9:00 AM
 BEARING: 99
 ALTITUDE: 40



200 0 200
 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
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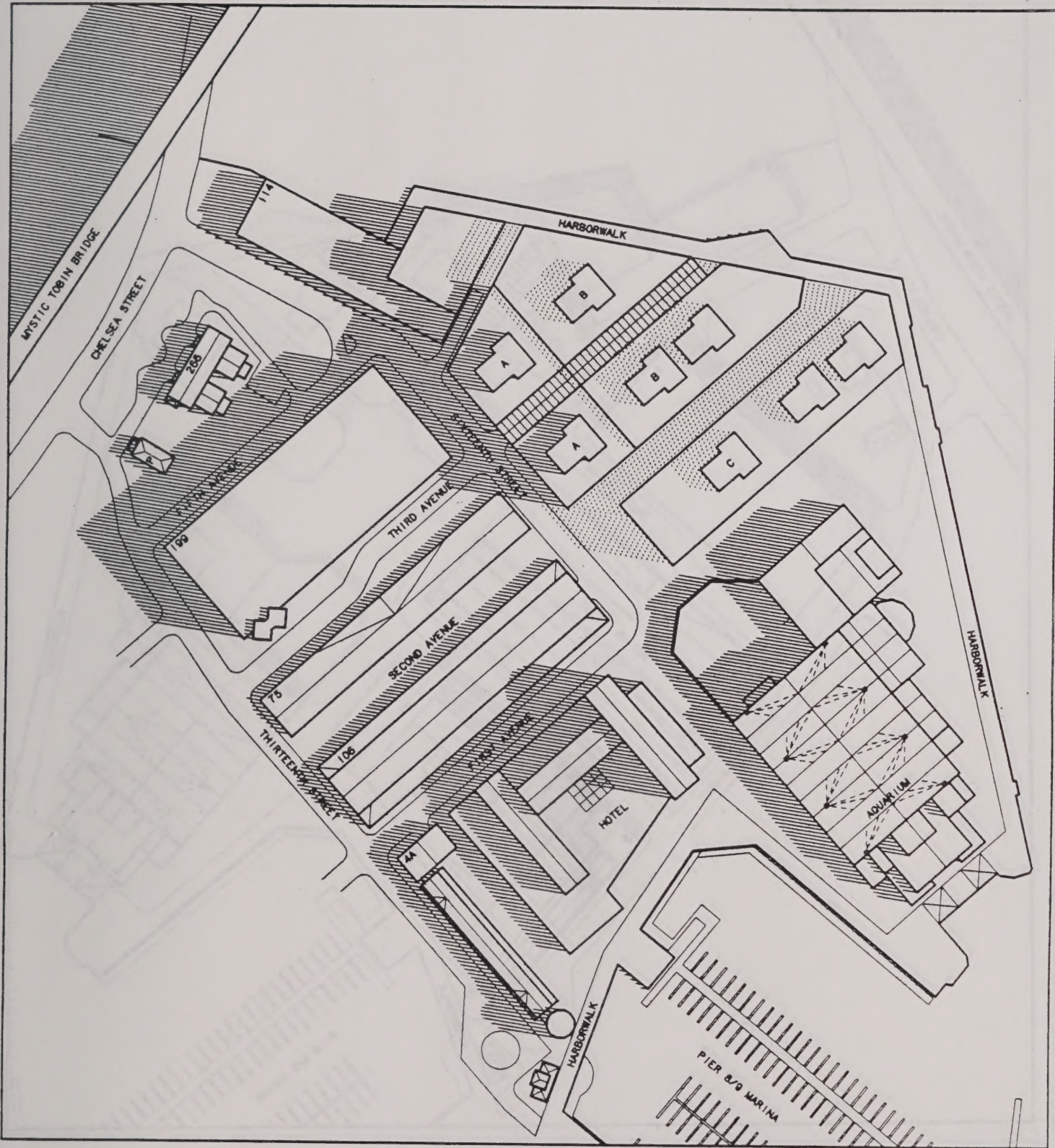
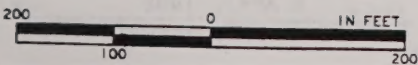


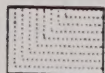
FIGURE: 8

ALTERNATIVE PROJECT SHADOW ANALYSIS Charlestown Navy Yard Biomedical Research Center – Buildings B & C

JUNE 21, 9:00 AM
 BEARING: 99
 ALTITUDE: 40



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

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 8 APRIL 1992



FIGURE: 9

PROPOSED PROJECT SHADOW ANALYSIS Charlestown Navy Yard Biomedical Research Center – Buildings B & C

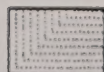
JUNE 21, 12:00 PM
 BEARING: 152
 ALTITUDE: 69



200 0 200
 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
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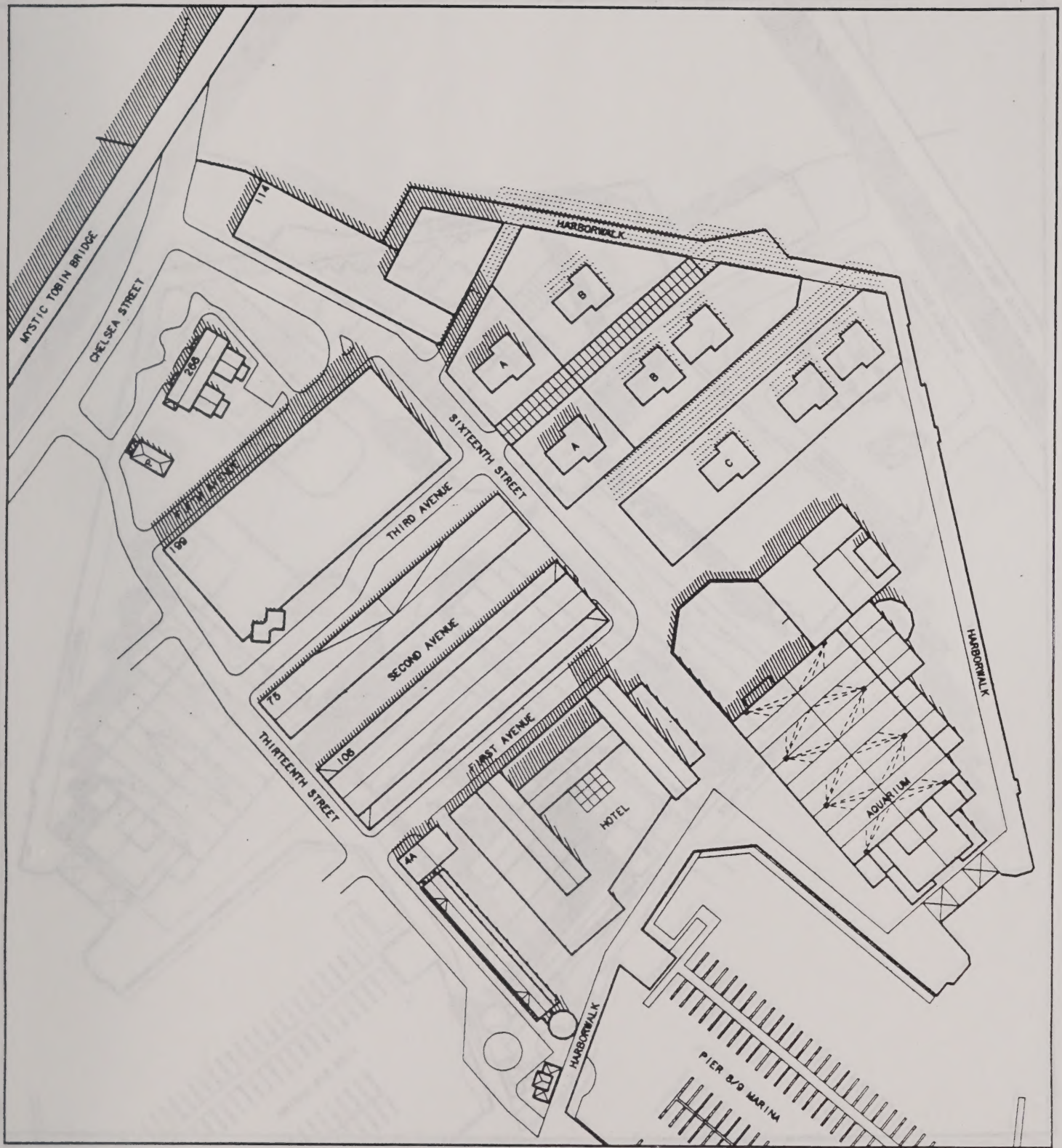


FIGURE: 10 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

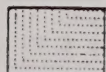
JUNE 21, 12:00 PM
 BEARING: 152
 ALTITUDE: 69



200 0 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

PREPARED BY:
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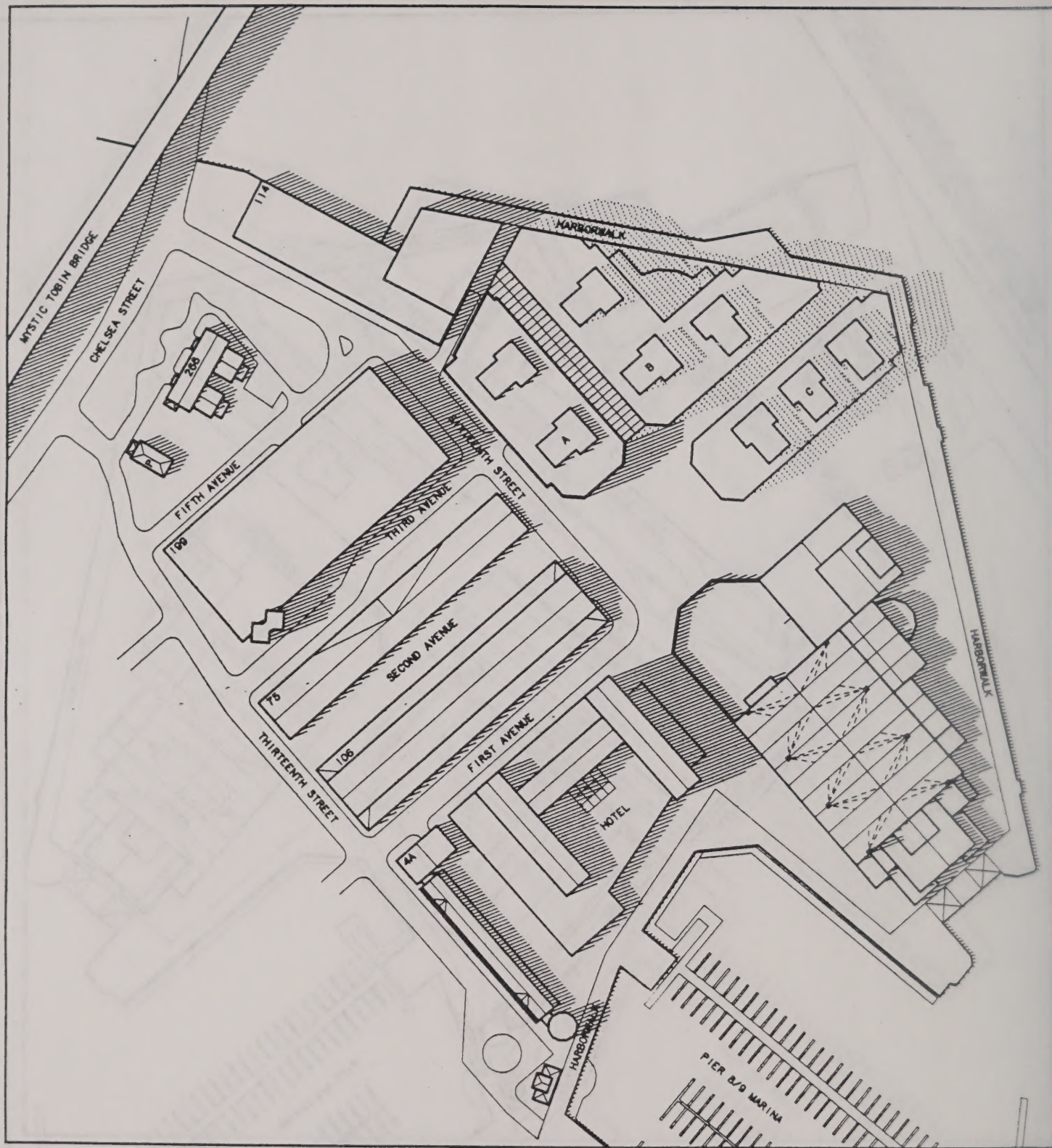


FIGURE: 11 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center - Buildings B & C

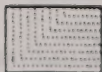
JUNE 21, 3:00 PM
 BEARING: 248
 ALTITUDE: 56



200 0 200
 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

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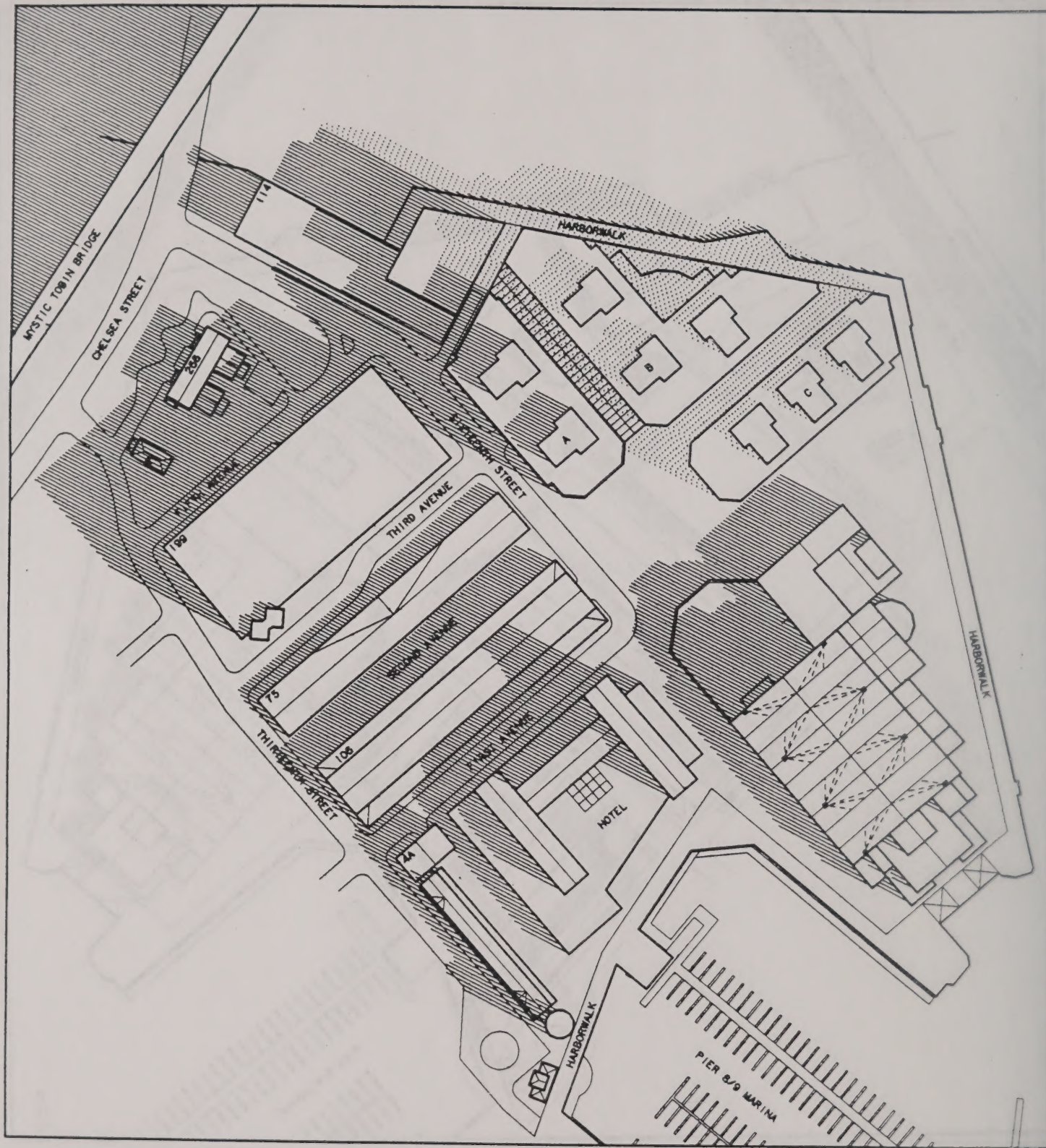


FIGURE: 13 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

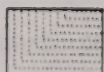
SEPTEMBER 21, 9:00 AM
 BEARING: 117
 ALTITUDE: 27



200 0 200
 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
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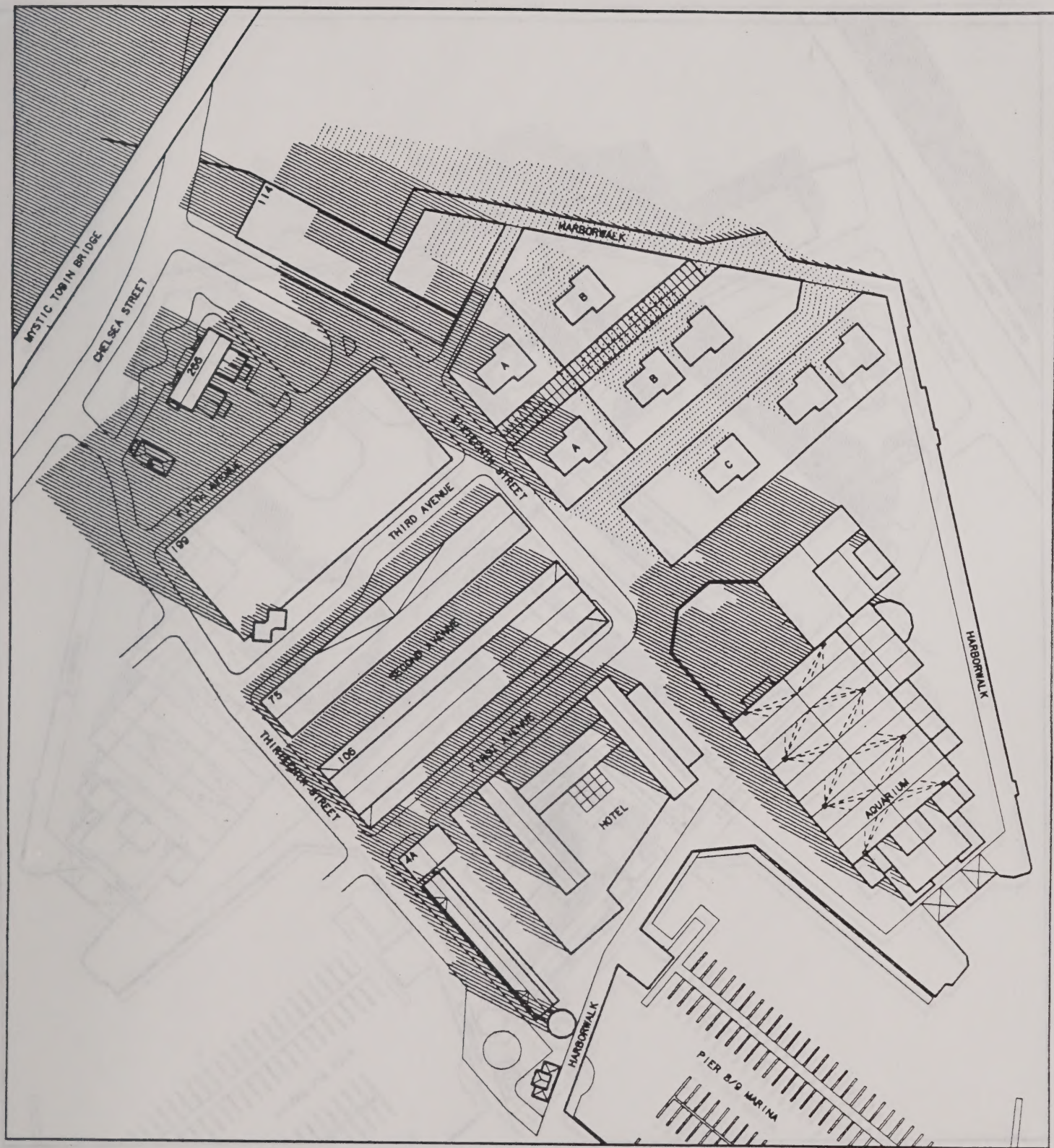


FIGURE: 14 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

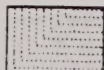
SEPTEMBER 21, 9:00 AM
 BEARING: 117
 ALTITUDE: 27



200 0 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

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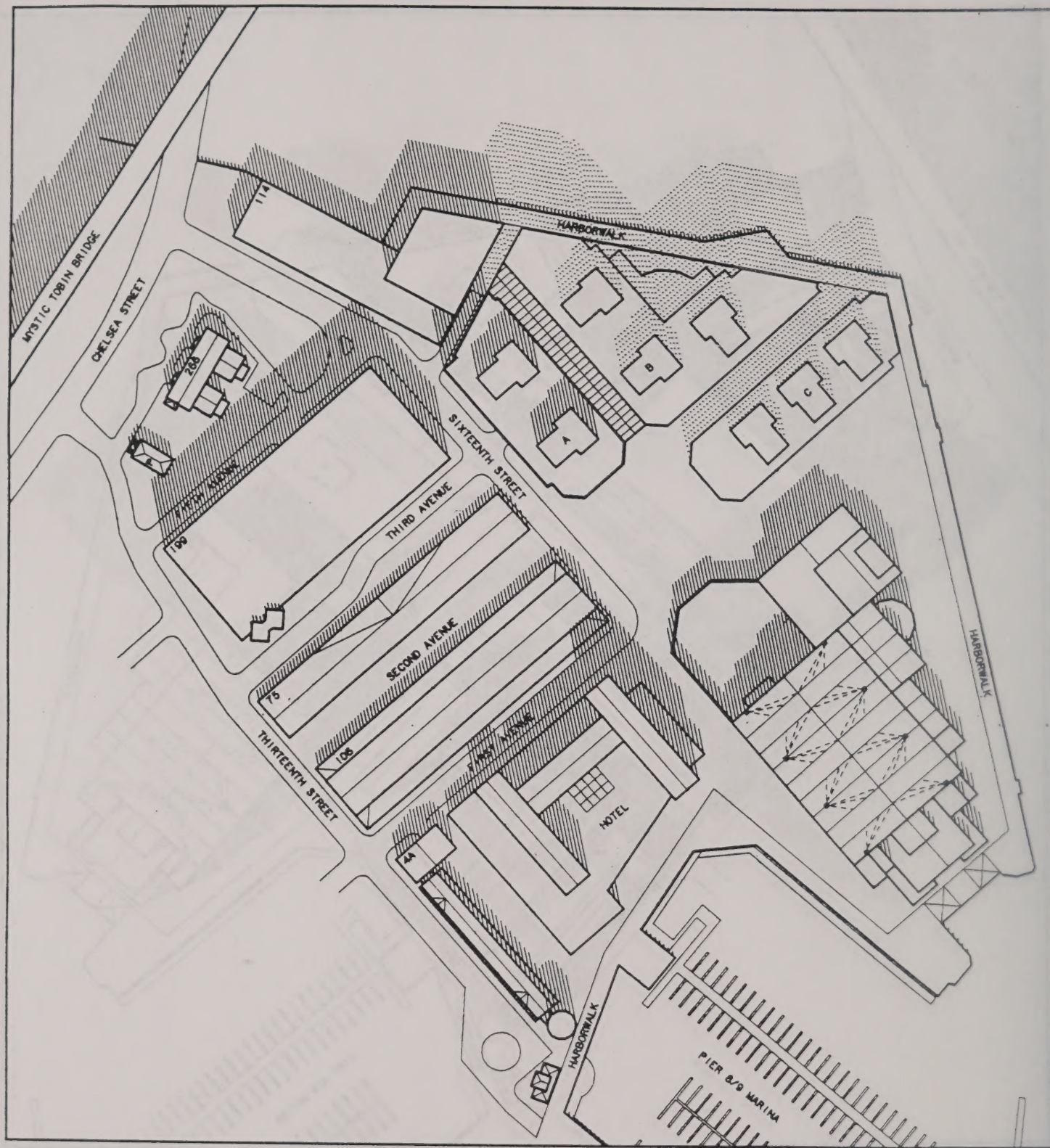


FIGURE: 15 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

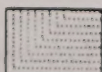
SEPTEMBER 21, 12:00 PM
 BEARING: 168
 ALTITUDE: 47



200 0 100 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

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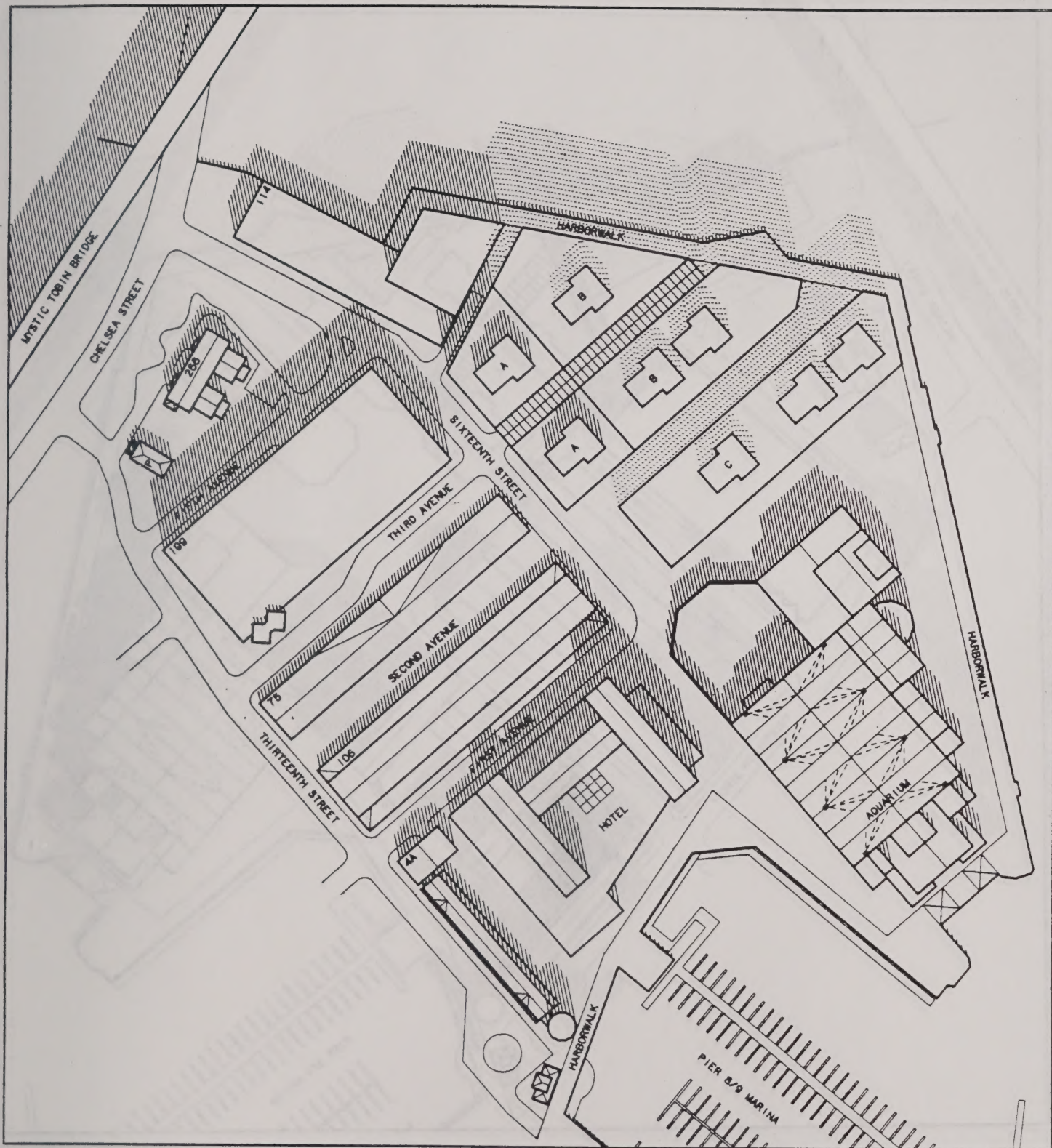


FIGURE: 16 ALTERNATIVE PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center - Buildings B & C

SEPTEMBER 21, 12:00 PM
 BEARING: 168
 ALTITUDE: 47



200 0 IN FEET
 100 200



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

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 8 APRIL 1992



FIGURE: 17

PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center - Buildings B & C

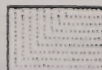
SEPTEMBER 21, 3:00 PM
 BEARING: 227
 ALTITUDE: 37



200 0 200
 IN FEET
 100



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
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 8 APRIL 1992

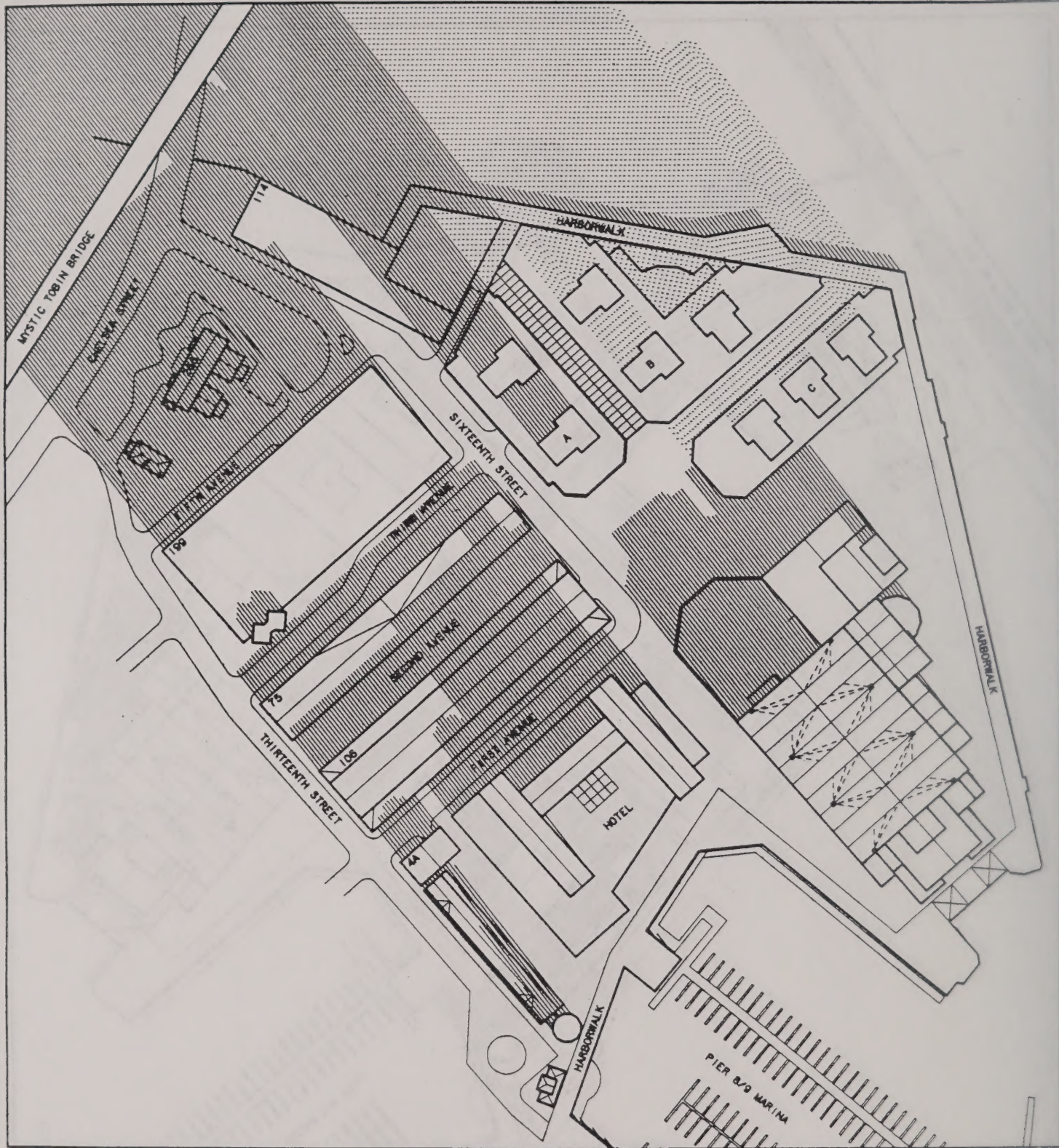


FIGURE: 19 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

DECEMBER 21, 9:00 AM
 BEARING: 142
 ALTITUDE: 15



200 0 200
 IN FEET

 BASE CONDITION SHADOWS

 NET NEW SHADOWS (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

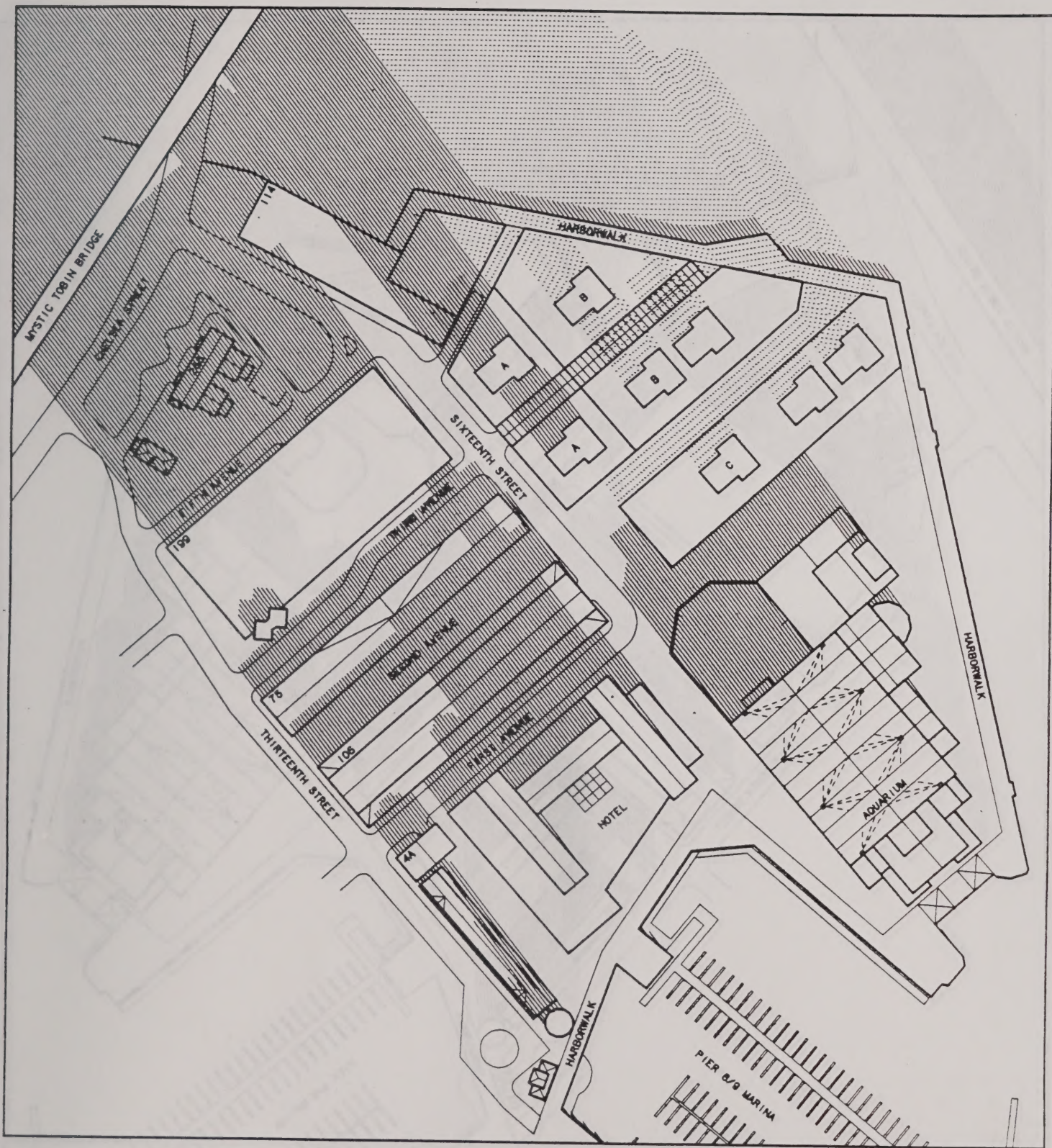
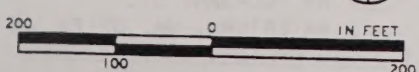
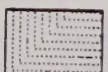


FIGURE: 20 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

DECEMBER 21, 9:00 AM
 BEARING: 142
 ALTITUDE: 15



-  BASE CONDITION SHADOWS
-  NET NEW SHADOWS (BIOMEDICAL BUILDING)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
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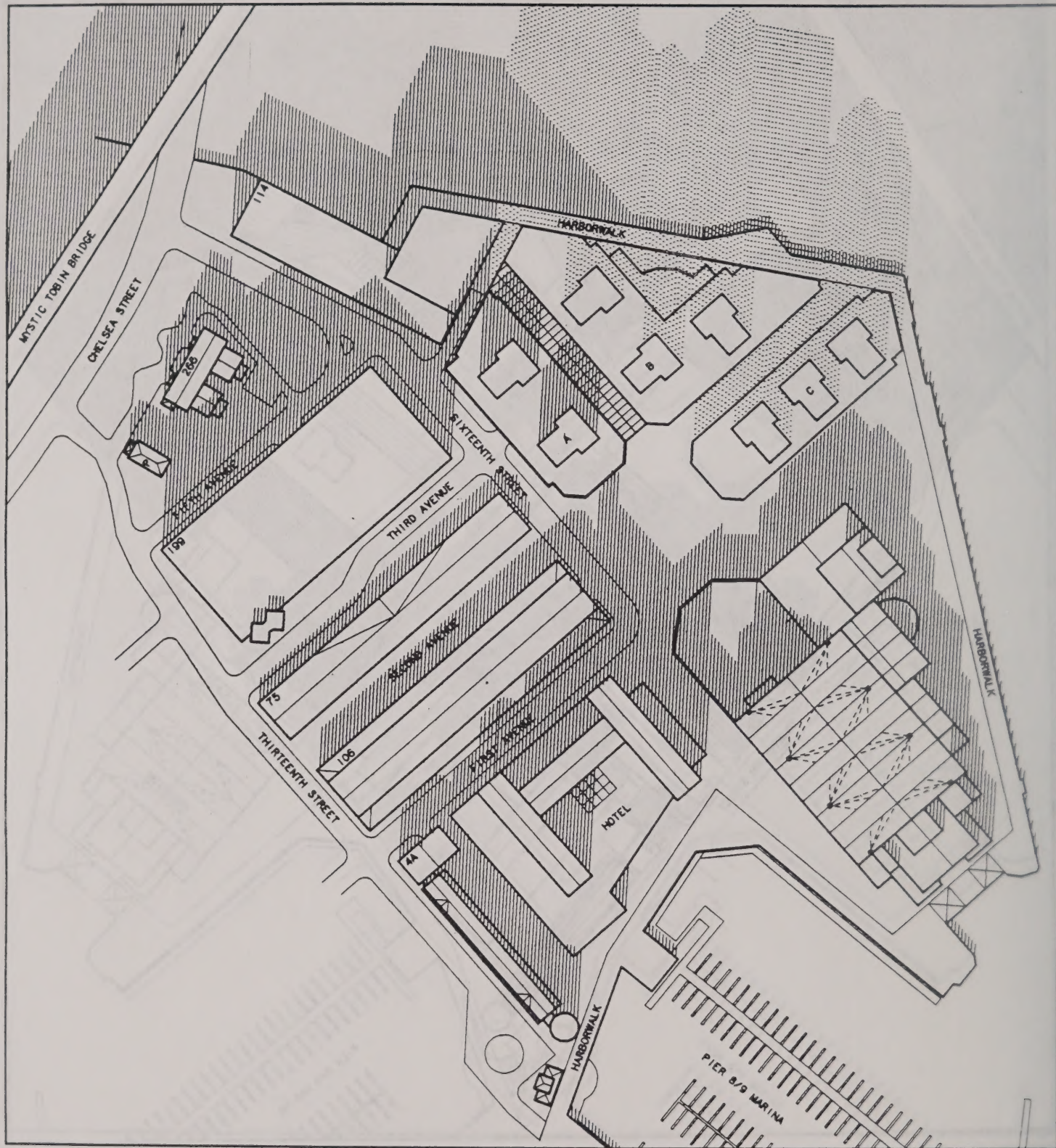


FIGURE: 21

PROPOSED PROJECT SHADOW ANALYSIS Charlestown Navy Yard Biomedical Research Center - Buildings B & C

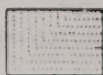
DECEMBER 21, 12:00 PM
 BEARING: 183
 ALTITUDE: 25



200 0 200 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
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 8 APRIL 1992

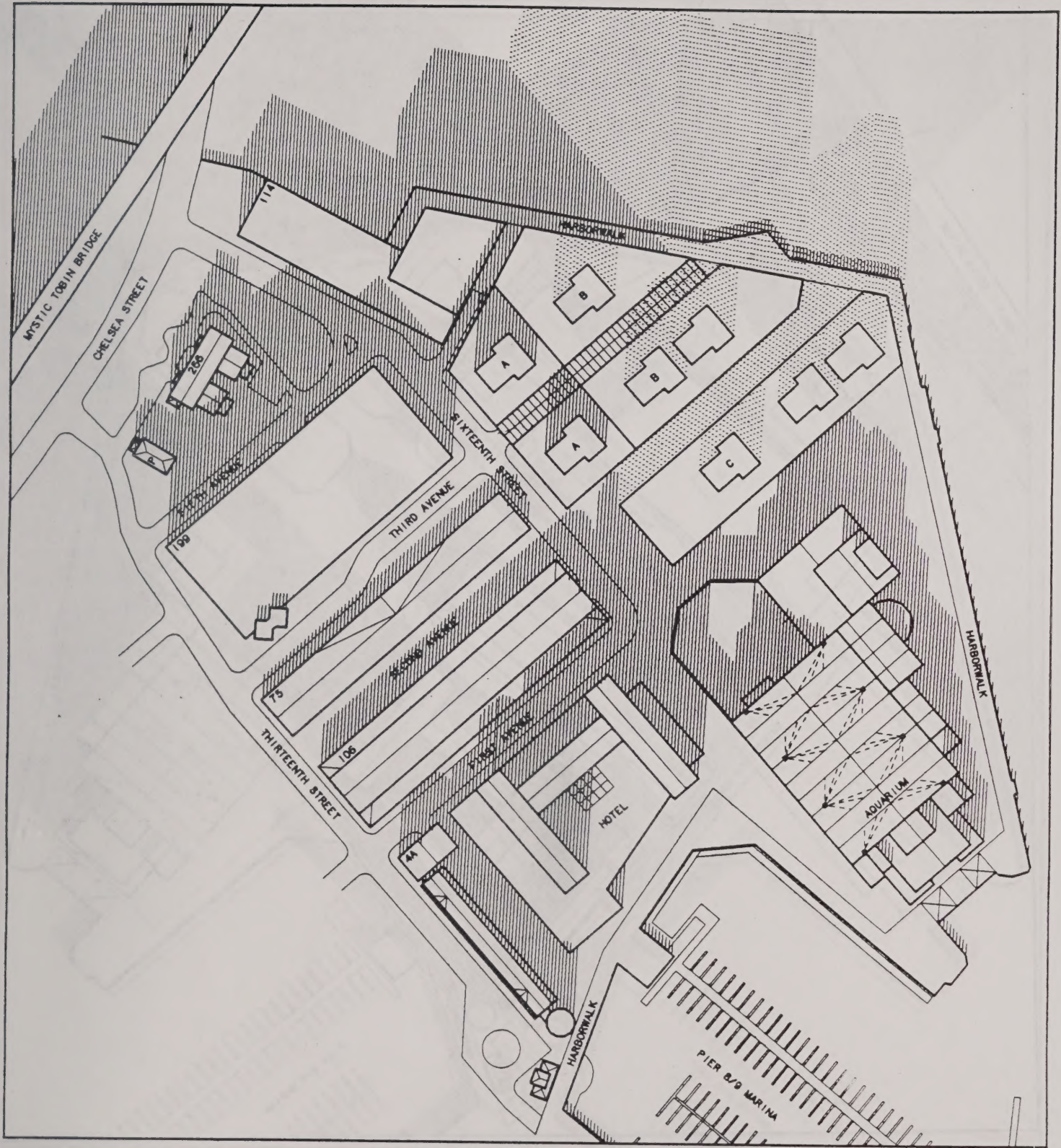
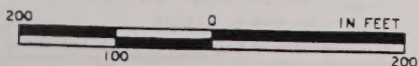
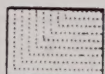


FIGURE: 22 ALTERNATIVE PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

DECEMBER 21, 12:00 PM
 BEARING: 183
 ALTITUDE: 25



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

PREPARED BY:
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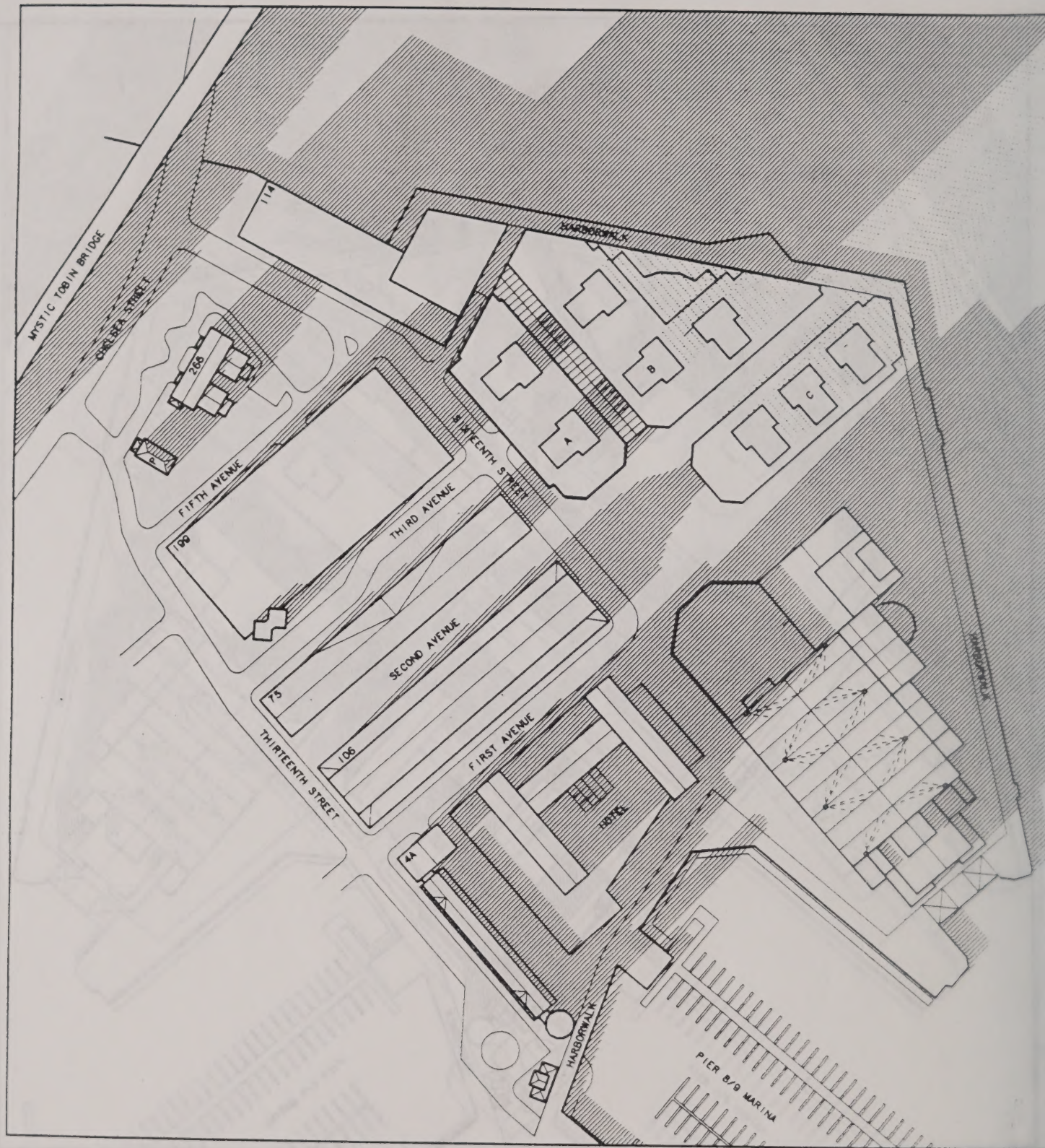


FIGURE: 23 PROPOSED PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center - Buildings B & C

DECEMBER 21, 3:00 PM
 BEARING: 224
 ALTITUDE: 11



200 0 200 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

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 8 APRIL 1992

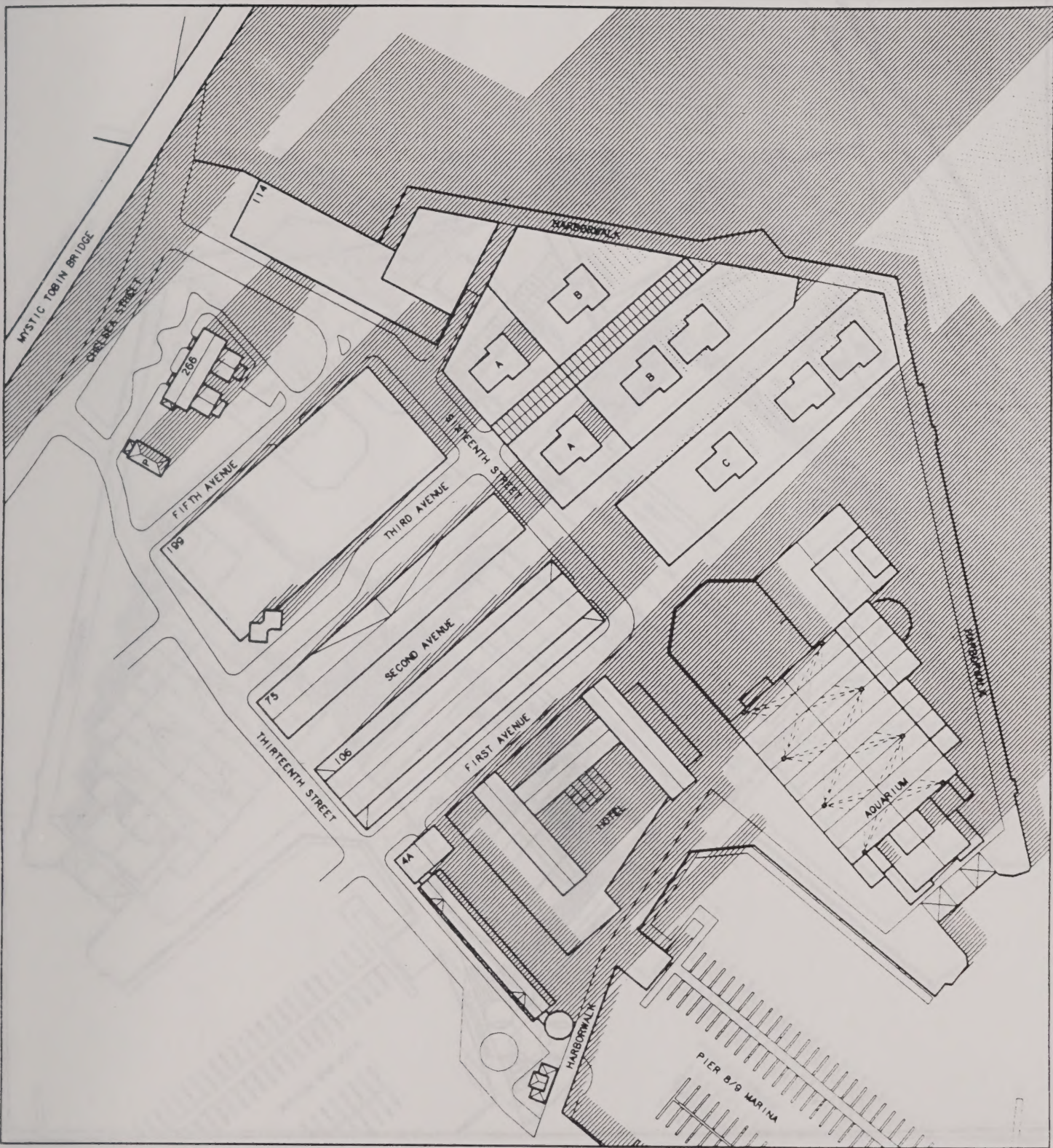
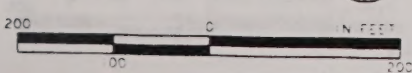
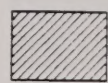
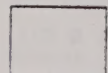


FIGURE: 24 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

DECEMBER 21, 3:00 PM
 BEARING: 224
 ALTITUDE: 11



-  BASE CONDITION SHADOWS
-  NET NEW SHADOWS (BIOMEDICAL BUILDING)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

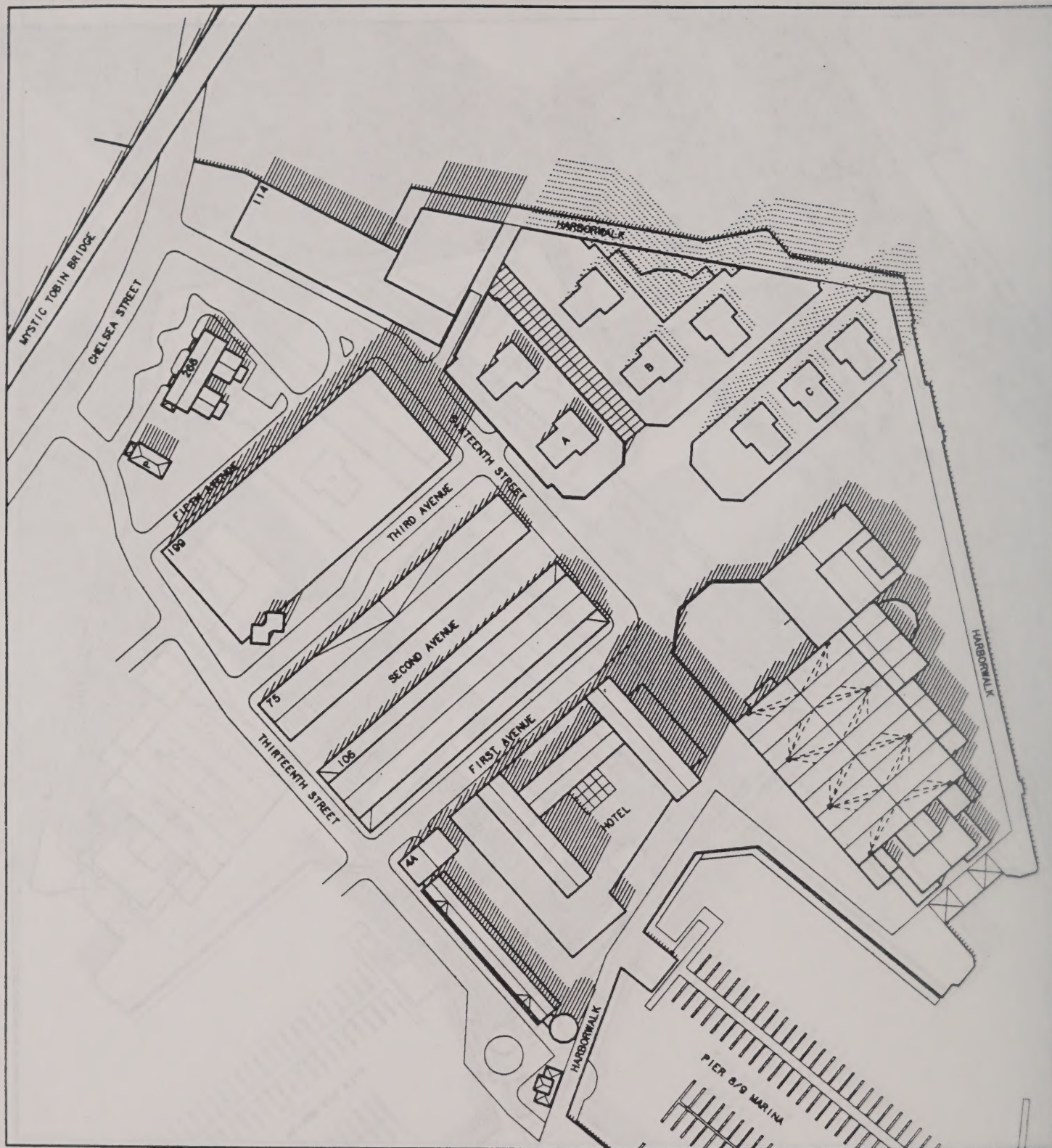


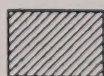
FIGURE: 25

PROPOSED PROJECT SHADOW ANALYSIS Charlestown Navy Yard Biomedical Research Center – Buildings B & C

APR 16/AUG 27, 1:00 PM
 BEARING: 207
 ALTITUDE: 55



200 0 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

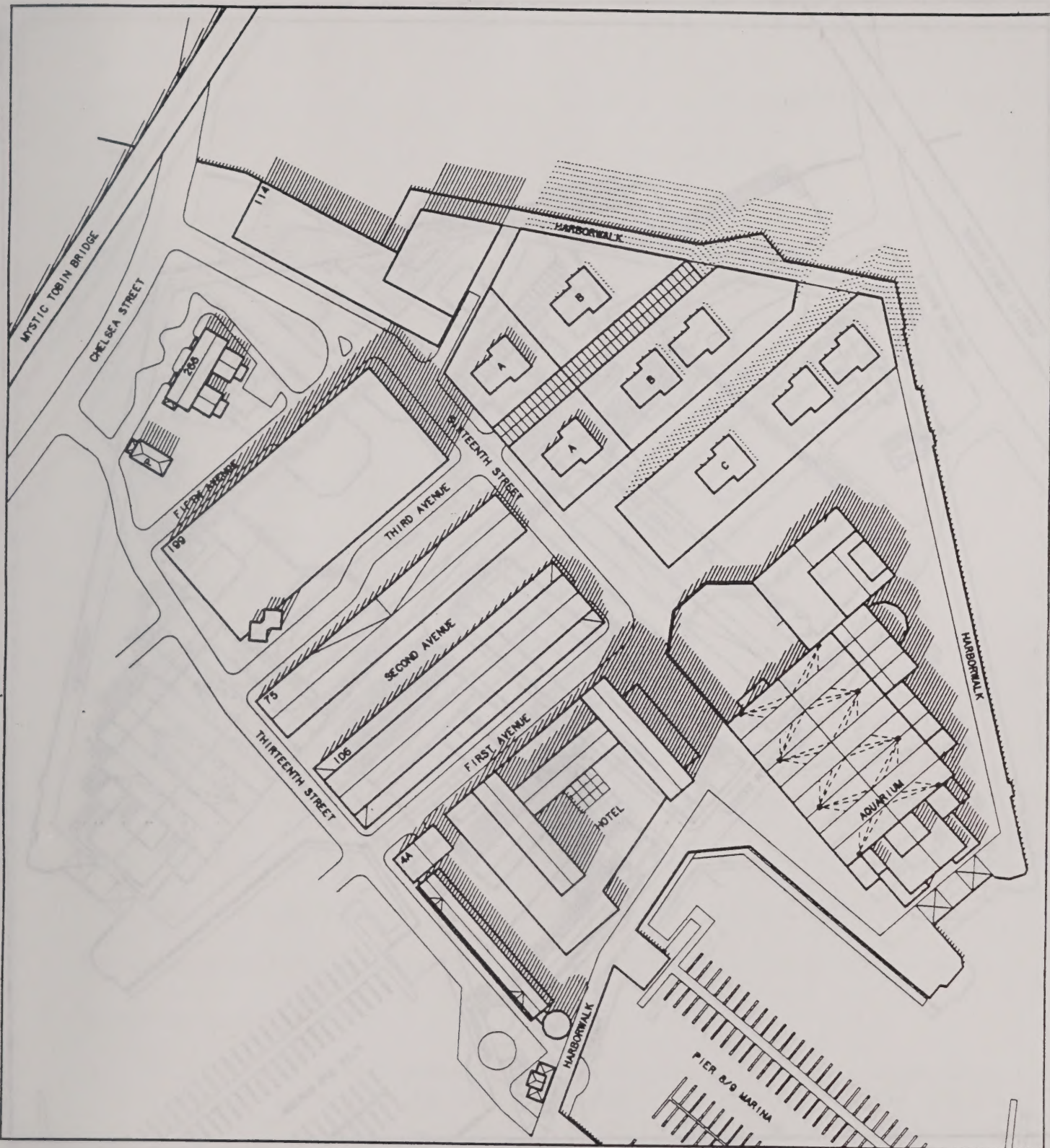
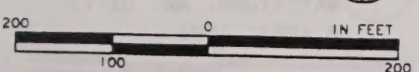
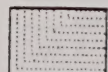


FIGURE: 26 ALTERNATIVE PROJECT SHADOW ANALYSIS
 Charlestown Navy Yard
 Biomedical Research Center – Buildings B & C

APR 16/AUG 27, 1:00 PM
 BEARING: 207
 ALTITUDE: 55



-  BASE CONDITION SHADOWS
-  NET NEW SHADOWS (BIOMEDICAL BUILDING)

PREPARED BY:
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 8 APRIL 1992

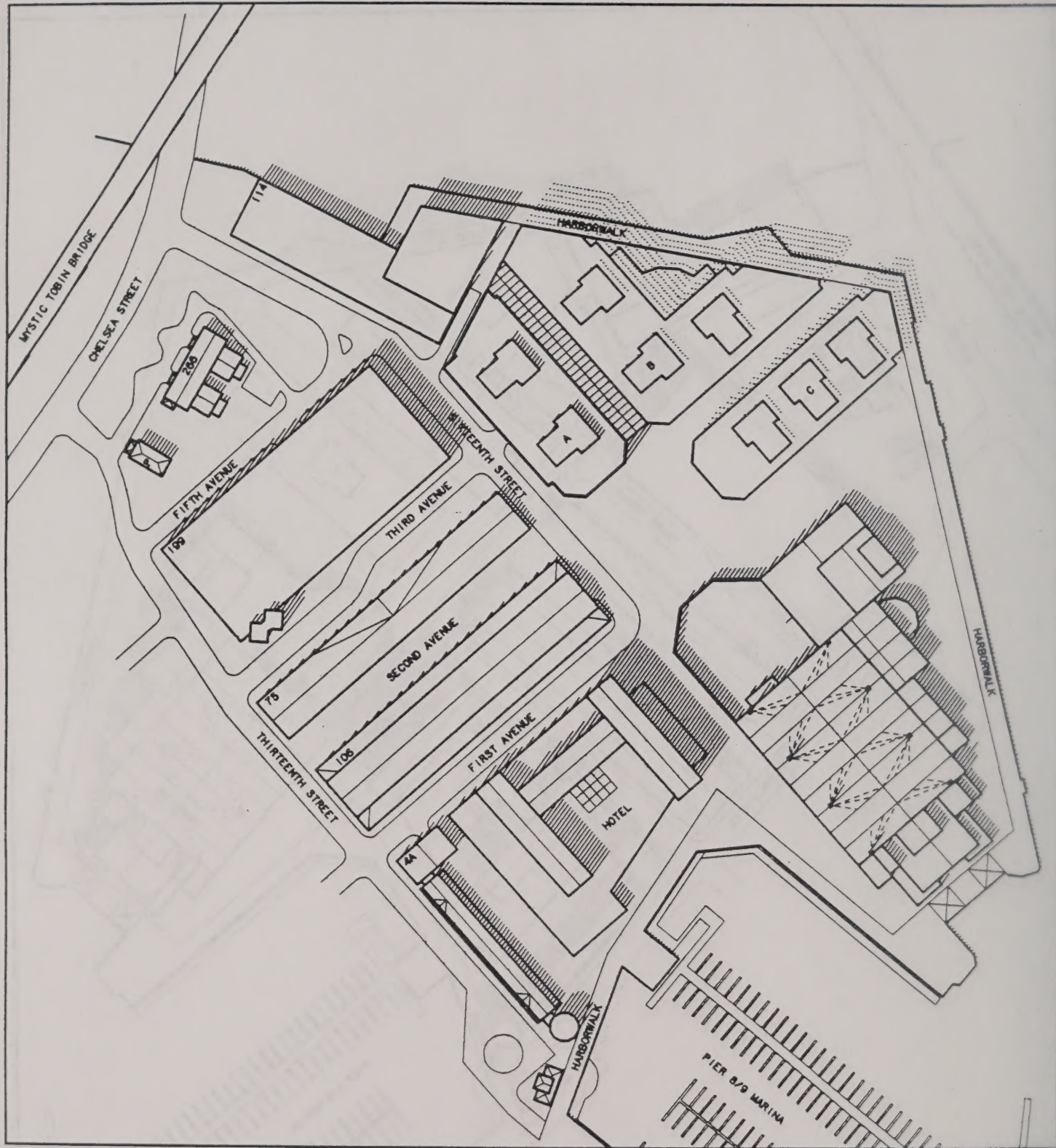


FIGURE: 27

PROPOSED PROJECT SHADOW ANALYSIS Charlestown Navy Yard Biomedical Research Center – Buildings B & C

MAY20/JULY 23, 1:00 PM
 BEARING: 215
 ALTITUDE: 65



200 0 200
 IN FEET



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL B & C)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

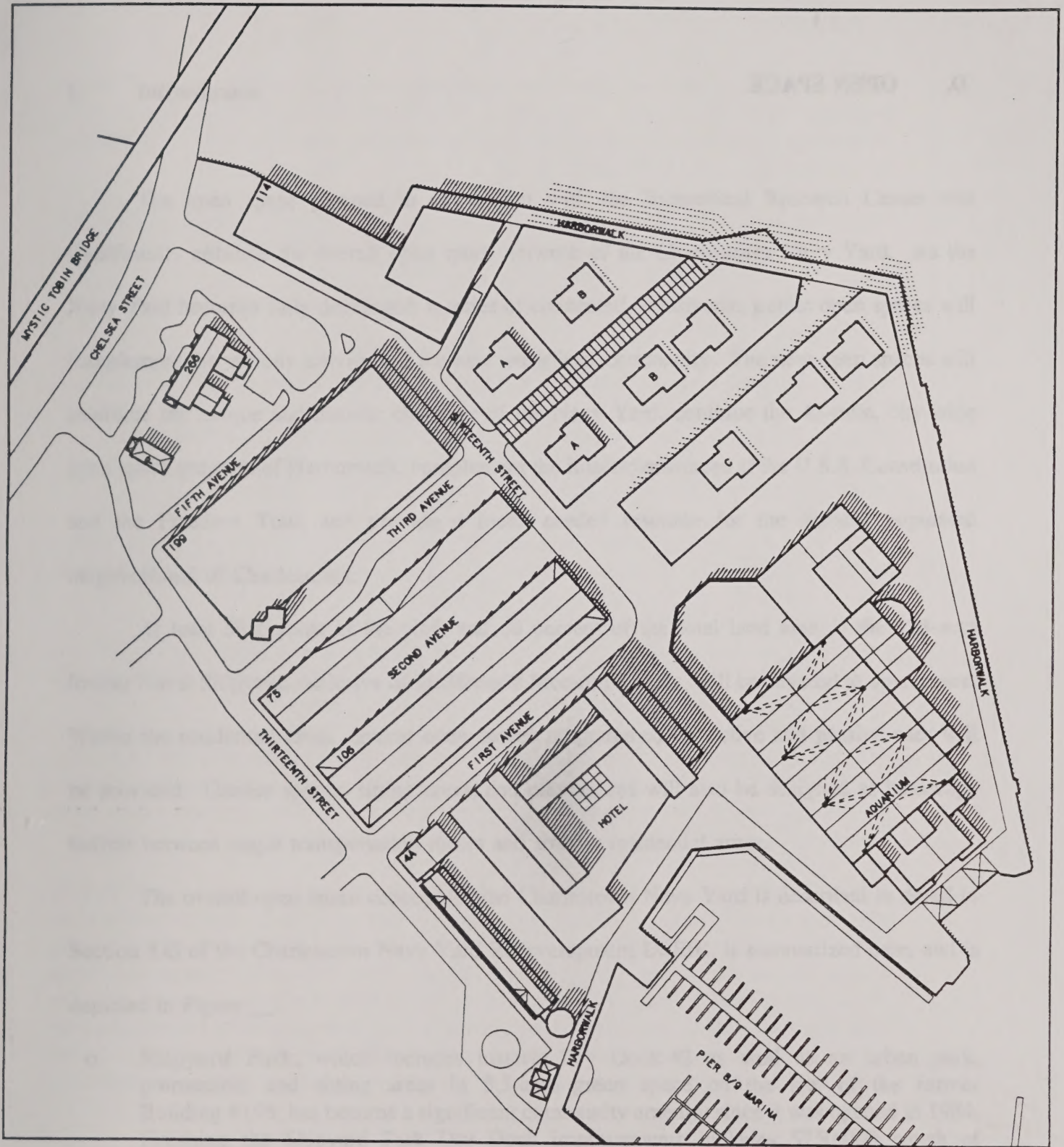
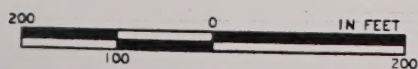
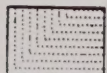


FIGURE: 28 **ALTERNATIVE PROJECT SHADOW ANALYSIS**
Charlestown Navy Yard
Biomedical Research Center – Buildings B & C

MAY 20/JULY 23, 1:00 PM
 BEARING: 215
 ALTITUDE: 65



BASE CONDITION
 SHADOWS



NET NEW SHADOWS
 (BIOMEDICAL BUILDING)

PREPARED BY:
 SASAKI ASSOCIATES, INC.
 64 PLEASANT ST.
 WATERTOWN, MA. 02172
 8 APRIL 1992

D. OPEN SPACE

1. Introduction

The open space planned in association with the Biomedical Research Center will significantly enhance the overall open space network of the Charlestown Navy Yard. As the Navy Yard becomes fully developed, a series of connected, yet diverse, public open spaces will complement the various activities of the new waterfront community. The new open spaces will reinforce the unique and historic character of the Navy Yard, continue the 43-mile, city-wide open space program of Harborwalk, complement the historic resources at the U.S.S. Constitution and the Freedom Trail, and provide a much needed resource for the densely populated neighborhood of Charlestown.

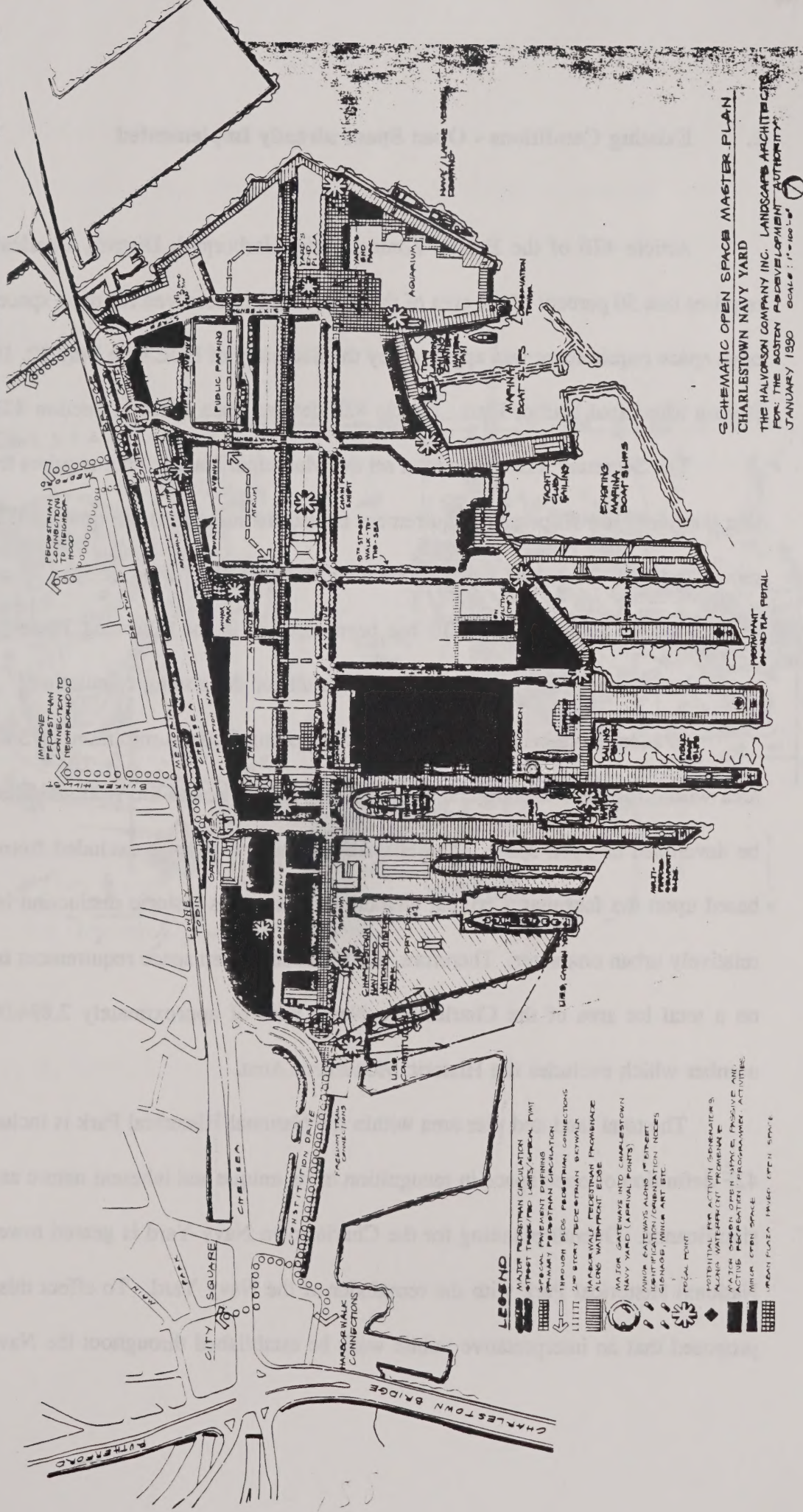
At least 50 percent of the piers and 50 percent of the total land area of the 135-acre former Naval Shipyard, exclusive of the Historic Monument Area, will be devoted to open space. Within the residential areas, diverse open spaces programmed for active and passive uses will be provided. Garden spaces, sitting areas, and play spaces will also be designed as landscape buffers between major transportation routes and smaller residential areas.

The overall open space concept for the Charlestown Navy Yard is described in detail in Section 5.G of the Charlestown Navy Yard Redevelopment DSEIR, is summarized here, and is depicted in Figure ____.

- o **Shipyard Park**, which includes historic Dry Dock #2 as well as an urban park, promenade, and sitting areas in 5.5-acre green space on the site of the former Building #195, has become a significant community amenity since it was opened in 1984. Finishing the Shipyard Park Dry Dock improvements includes \$750,000 worth of additional work currently in progress.
- o **Yard's End Park** will include five acres of new park space and plaza area along 16th Street. These open spaces will reinforce the public activities planned around and in the new Yard's End development.

- o **Harborwalk**, a continuous pedestrian thoroughfare along Boston's waterfront, will be completed in the Navy Yard. Through the Yard's End redevelopment and the provision of additional marina dockage at Pier 9, the Harborwalk within the Navy Yard will total three miles in length.
- o **The extension of Pier 3** will add 35,000 square feet of new public recreational facilities to the Navy Yard and over 1,200 linear feet to the Harborwalk system.
- o **First Avenue** will continue to be enhanced as the major auto and pedestrian spine through the Yard's End area.
- o **Second Avenue** will be extended as a major pedestrian mall through the Yard's End area.
- o **Flirtation Walk** will be recreated to its former importance as a pedestrian open space amenity, reinforcing the open space activities of the adjacent National Historical Park with its U.S.S. Constitution and the Freedom Trail.
- o **Gates 1, 2, 4, 5, and the proposed Gate 6** along Chelsea Street will provide pedestrian access to the Navy Yard and the Harbor beyond including a direct connection from the Navy Yard to the Little Mystic Channel open space.
- o **Chelsea Street** become a tree-lined corridor. A variety of smaller public plazas and open spaces as well as the various gateways into the Navy Yard from Charlestown will provide a landscaped connection between the Navy Yard and Charlestown.
- o **Major view corridors** defined in the 1978 Guidelines will be enhanced, and the view of the Boston skyline from shipways will be reinforced by building separations and setbacks on Pier 5. View corridors along the streets perpendicular to First Avenue, which allow an appreciation of the land-to-sea connection, will be strengthened with focal points.
- o **A Double Interpretative Loop** will be created with signage and explication of historic sites as a walking tour. The Loop will be comprised of a) First Avenue between the U.S.S. Constitution and Yard's End, b) Flirtation Walk with points of interest such as the Muster House, the Boston Marine Society Museum, the Ropewalk Museum, the Hemp House and the Chain Forge Museum, and c) Harborwalk with such destinations as the New England Historic Seaport, the Courageous Sailing Center, the Pump House, Shipway ramps, and a pedestrian connector at the seaward end of Dry Dock 5. The Loop thus provides the pedestrian with a variety of sites of historical, aesthetic, and maritime interest.

Figure 68 Charlestown Navy Yard Open Space Master Plan



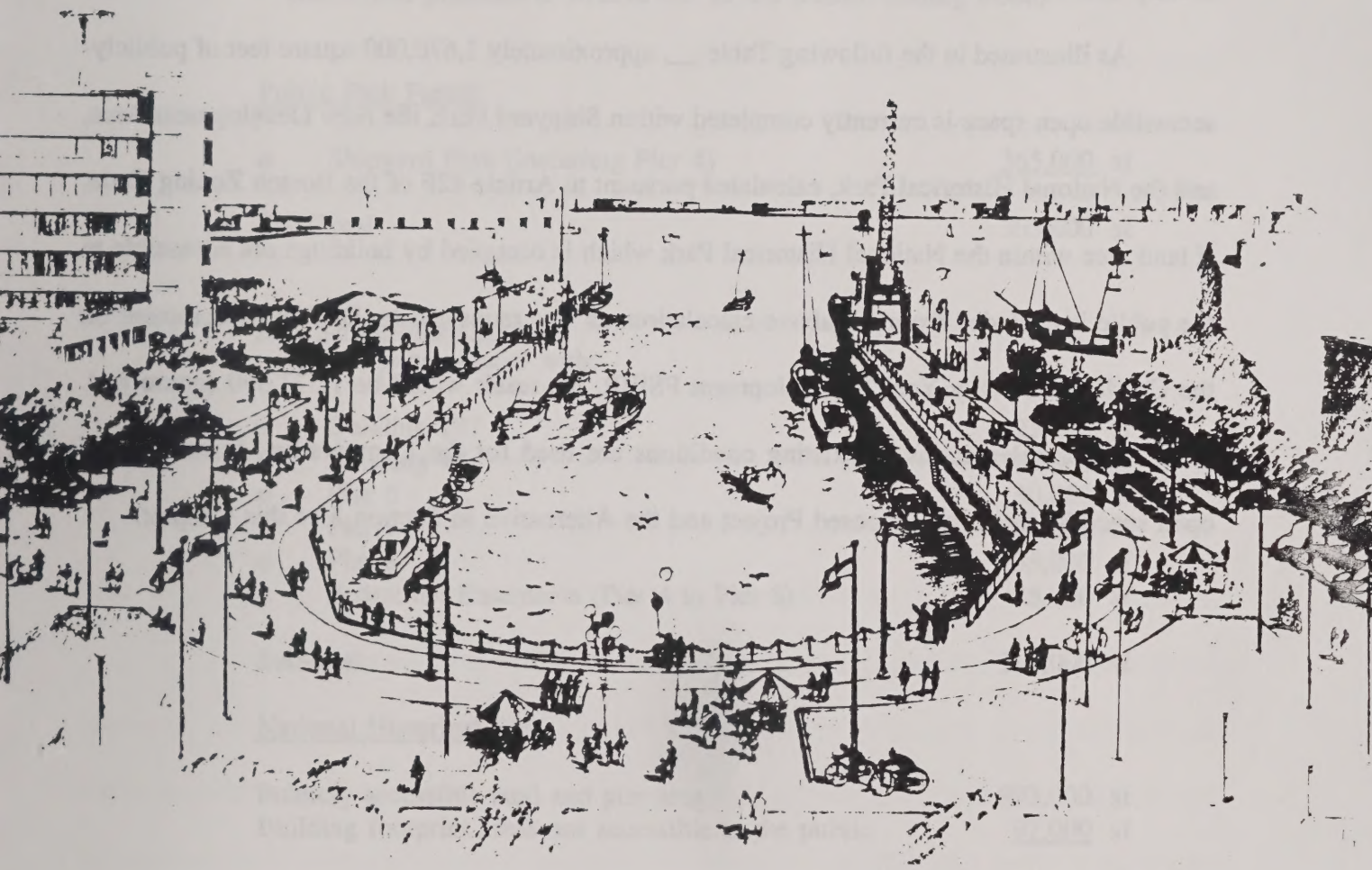
2. Existing Conditions - Open Space already Implemented

Article 42F of the Boston Zoning Code, Harborpark District, Charlestown Navy Yard requires that 50 percent of the area of the Navy Yard be reserved for open space. The 50 percent open space requirement was approved by the Secretary of EOEA on May 22, 1991 as part of the Boston Municipal Harbor Plan. Article 42F defines open space at Section 42F.6

The Secretary's determination on the Municipal Harbor Plan requires the BRA to certify that the minimum 50 percent requirement is also maintained at the time each individual project moves forward. In order to provide such certification, the listing of open spaces from Table ___ in Charlestown Navy Yard FSEIR has been adjusted in the following Table ___ to include only those elements presently completed and relevant for the zoning calculation.

In accordance with Article 42F of the Zoning Code, a minimum of 50 percent of the lot area within the New Development Area, Shipyard Park, and the National Historical Park must be developed as open space. The Historic Monument Area is excluded from this requirement based upon the fact that a critical element of this area's historic distinction is its coherent and relatively urban character. Therefore, the 50 percent open space requirement is calculated based on a total lot area of the Charlestown Navy Yard of approximately 2,884,000 square feet, a number which excludes the Historic Monument Area.

The total land and pier area within the National Historical Park is included in the Article 42F definition of open space in recognition of its unique and inherent nature as a park of historic significance. Overall planning for the Charlestown Navy Yard is geared toward integrating the National Historical Park with the remainder of the Navy Yard. To effect this goal, it has been proposed that an interpretative public walk be established throughout the Navy Yard, based on



a concept called the Double Interpretive Loop. The goal of the Double Interpretive Loop is an enhanced interpretation of the historic resources throughout the entire Navy Yard. The concept is fully described in the Charlestown Navy Yard Redevelopment FSEIR, Appendix C.

As illustrated in the following Table __, approximately 1,670,000 square feet of publicly-accessible open space is currently completed within Shipyard Park, the New Development Area, and the National Historical Park, calculated pursuant to Article 42F of the Boston Zoning Code. If land area within the National Historical Park which is occupied by buildings not accessible to the public is excluded from the above calculation, as was requested by DEP in its comment on the Charlestown Navy Yard Redevelopment FSEIR, the result would be 1,573,000 square feet.

These calculations of existing conditions are used for the Comparative Assessment of open space between the Proposed Project and the Alternative in Section 5 of this Chapter.

TABLE __

Charlestown Navy Yard Existing Improved Open Space Calculation

(calculated pursuant to Article 42F of the Boston Zoning Code)

Public Park Parcel:

o Shipyard Park (including Pier 4) **365,000** sf

Sub-Total **365,000** sf

New Development Area

open spaces associated with:

o Building 197 **25,000** sf

o Building 42 **120,000** sf

o Pier 6 **30,000** sf

o Pier 7 **20,000** sf

o Pier 8 **35,000** sf

o Pedestrian Easements (Pier 4 to Pier 8) **85,000** sf

Sub-total **315,000** sf

National Historical Park

Publicly accessible land and pier area **893,000** sf

Building footprint areas not accessible to the public **97,000** sf

Sub-total **990,000** sf

TOTAL OPEN SPACE 1,670,000 sf

3. Proposed Project Open Space Plan

The Proposed Project will add a total of approximately 85,000 square feet of open space in the Yard's End area, through the following improvements.

Yard's End Plaza, totalling 25,000 square feet, will be created at the intersection of First Avenue and Sixteenth Street. The Plaza is critical to the continued maintenance of waterfront view corridors allowing an unobstructed view from Sixteenth Street and Second Avenue to Pier 11. The Plaza will reinforce the public activities planned in conjunction with the new Aquarium facility and will serve as a major portion of the five-acre Yard's End Park.

The Second Avenue Pedestrian Mall will be extended creating 25,000 square feet of public open space. Sensitive design will recall the mall's former appearance and continue the award-winning details already in place between Fifth and Ninth Streets. It will continue to be tree-lined, with period benches, granite pavers, lighting standards, and plantings.

In response to the Secretary's comments, the Proposed Project no longer includes an atrium between Buildings B and C, thus increasing the amount of open space from that depicted in the Charlestown Navy Yard FSEIR. As a result, the Second Avenue Pedestrian Mall continues to the water's edge.

Harborwalk will be extended along the Little Mystic Channel by preserving a 20-foot easement, resulting in 21,300 square feet of open space. Along this portion of Harborwalk, visitors and residents will find a vantage point from which to observe the harbor's industrial facilities and shipping operations at the Working Port Viewing Area. Views of the existing port will be complemented by an interpretive plaque describing Charlestown's heritage as a working waterfront.

Other pedestrian walkways such as First Avenue extension and Sixteenth Street sidewalks and other small open areas total 13,700 square feet.

Total Area	2,300,000	2,313,700
Open Space	1,300,000	1,371,000
Existing - Total	50%	51.5%
Open Space	1,300,000	1,371,000
Existing - Proposed	50.4%	51.5%
Open Space	1,300,000	1,371,000
Existing - Alternative	51.5%	51.5%

* Open Space includes Public and Private Areas

4. Alternative Project Open Space Plan

The Alternative, with its three parallel building massing scheme, results in a total of 77,200 square feet of open space.

The Alternative Project is similar to the Proposed Project with respect to the preservation of the Second Avenue Mall and the 20-foot easement for Harborwalk producing the same amount of public open space along Second Avenue and the Little Mystic Channel Harborwalk.

However, in the Alternative scheme, Building C would be set back 60 feet from Sixteenth Street, the minimum required by the Amended Design Guidelines for Parcel 6, creating only a 10,000 square foot courtyard at the intersection of First Avenue and Sixteenth Street.

Other pedestrian walkways, such as First Avenue extension and Sixteenth Street sidewalk, and other small open space areas total 20,000 square feet.

5. Comparative Assessment

The following calculations are provided to demonstrate that the Proposed Project complies with 1) the requirements of Article 42F and the Secretary's determination on the Municipal Harbor Plan that 50 percent open space requirement is maintained on a project by project basis, and 2) that the 50 percent condition obtains if land area within the National Historical Park occupied by buildings is excluded from the calculation in response to DEP's comment.

Table __

Open Space Comparison

	Calculated per Article 42F/ Municipal Harbor Plan	Calculated per DEP Request
Total Area	2,884,000	2,884,000
Open Space Existing Today	1,670,000 58%	1,573,000 54.5%
Open Space Existing + Proposed	1,755,000 60.8%	1,658,000 57.5%
Open Space Existing + Alternative	1,733,700 60.1%	1,636,700 56.7%

* (Does not include Historic Monument Area)

6. Benefits of the Proposed Project

The benefits of the Proposed Project are discussed below and focus on specific components contained in the Navy Yard open space concept.

Harborwalk

As initially set out in the 1978 plan, access to the water continues to be a major goal of planning for the Charlestown Navy Yard. Since 1984, the major component of this public access has been the shoreline walkway known as Harborwalk. Harborwalk is the physical embodiment of the concept that the shoreline should be regained for the public's use and benefit. Such pedestrian access allows the public direct interaction with the water for the purpose of fishing, walking, and viewing pleasure. Uninterrupted shoreline access will be made available from Shipyard Park to the Yard's End. A diversity of uses including parks, water shuttle areas, marinas, sailing programs, public landings, glass pavilions, historic and cultural facilities as well as the Navy Yard's retail, office, and residential development, will encourage use of Harborwalk.

The design of Harborwalk is, and will continue to be, of the highest quality. Maintenance of Harborwalk from parcel to parcel will be the responsibility of the individual developers whose land the Harborwalk crosses. Guidelines for Harborwalk have been developed to ensure this quality and are set forth in Article 42F of the Boston Zoning Code, the Charlestown Navy Yard Redevelopment Master Plan, and the Municipal Harbor Plan.

The Proposed Project would provide significantly greater public access to the harbor than was previously envisioned in 1978. The Proposed Project would create more than 740 linear feet of additional Harborwalk within the Navy Yard. Whereas no pedestrian walkway was previously

proposed along the Little Mystic Channel, the Proposed Project provides this connection between Pier 11 and the Building #114 site and Gate 6 beyond.

Working Port Viewing Area

The Proposed Project also calls for the creation of a Working Port Viewing Area to be included as part of the new Harborwalk. This Viewing Area will be one of the interpretive exhibits along the Double Interpretive Loop and will offer visitors a view of the Little Mystic Channel and the Moran Container Terminal beyond, which operates the second largest freight crane in the country. A plaque will be installed describing Charlestown's heritage and future as a working, industrial waterfront.

Navy Yard Streetscape

The Proposed Project calls for several street improvements that will effectively complete the major street improvements suggested in 1978. These improvements will include trees, lighting, seating, and paving materials that evoke the Navy Yard's past.

Tree plantings along Sixteenth Street will strengthen the Street's identity as a pedestrian promenade, and via Gate 6, will provide a major pedestrian connection to the rest of the Charlestown neighborhood. The view corridor along 16th Street suggested by the 1978 plan will be enhanced. This additional link to the community will provide pedestrian access to the center of a newly created five-acre park at Yard's End, a major part of which is the 25,000 square-foot Yard's End Plaza planned as part of the Proposed Project.

The existing tree-lined First Avenue will be extended to the edge of Harborwalk, and will serve as the major pedestrian and visual connection uniting the Navy Yard between the National

Historical Park in the west and the proposed Yard's End Park in the east.

The Second Avenue Mall will be continued as a pedestrian mall between Buildings B and C. The quality details already in place between Fifth and Ninth Streets along this pedestrian way.

Navy Yard Courtyards/Plazas

The Proposed Project will create a 25,000 square foot plaza, known as Yard's End Plaza, in front of Building C that would add a significant amount of open space to the Navy Yard's existing open space network. As evidenced by the shadow studies contained in Chapter 4, Section C, this Plaza will be in sunlight during the most desired times of the day. This plaza will create a formal entry to the proposed Yard's End Park, while providing a critical waterfront view corridor to Pier 11. The Plaza will contain appropriate paving materials, ample seating and lighting, and carefully selected plantings.

First and Second Avenue View Corridor

New streets and open spaces will be designed to reinforce the historic street grid and open space system of the Navy Yard. The Proposed Project provides for the extension of both First and Second Avenues creating view corridors through Yard's End. The design and layout of these streets will be based on documentary evidence of their urban design. The creation of the courtyard at Yard's End provides views from Second Avenue and Sixteenth Street across Pier 11 toward East Boston.

Conclusion

Quantitatively, publicly-accessible open space provided in association with the Proposed Project exceeds that required by the Charlestown Navy Yard Zoning and the Municipal Harbor Plan as well as exceeding that provided by the Alternative. The open spaces to be created in connection with the Proposed Project are of high quality and will add significantly to the pedestrian's experience of the Navy Yard.

1. Introduction

This Chapter describes the compliance of Buildings B and C of the Biomedical Research Center with Chapter 91 of the Massachusetts General Laws, the Waterways Regulations (310 CMR 9.00), as modified by the approved Boston Municipal Harbor Plan, to the extent requested in the scope for this DEIR (Secretary's Certificate, December 23, 1991).

2. Existing Waterfront Use

Parcels 6 and 7 are presently occupied by several obsolete naval industrial buildings. These buildings have stood vacant since 1974 and block sight lines to the water along Second Avenue. There is no public access to the decaying northeastern edge of the site, which abuts the Little Mystic Channel. The remainder of the Yard's End area along the Little Mystic Channel is occupied by Building #114, which abuts the northern end of Parcel 7. Building #114 has suffered extensive fire damage and vandalism.

3. Regulatory Context and Scope of DEIR

The Charlestown Navy Yard Redevelopment DSEIR and FSEIR discussed the history and policies of Massachusetts waterways licensing as well as the compliance of the Charlestown Navy Yard redevelopment plan, including the plan for the Biomedical Research Center, with those policies. (See Charlestown Navy Yard DSEIR, Section 5J and FSEIR Response to Letter 1, Comment 8 and Letter 5, Comment 2 and 3).

The Secretary's Certificate for Buildings B and C (December 23, 1991 in response to ENF) narrows the scope of the Waterways Section of this DEIR to compliance of Buildings B and C with certain site-specific waterways licensing concerns. Those issues are:

- facilities of public accommodation (FPAs)
- open space
- building massing
- public views
- wind and shadow impacts

The Certificate requests that the DEIR respond to comments on these issues as outlined in the Department of Environmental Protection's (DEP) comment letter, particularly the DEP's comment regarding parking proposed for the ground floor.

4. Compliance of Buildings B and C with Waterways Regulations as Modified by the Boston Municipal Harbor Plan

a. Facilities of Public Accommodation

The requirements for facilities of public accommodation (FPAs) on Parcels 6 and 7 are set forth in the approved Boston Municipal Harbor Plan. These requirements modify those of the Waterways Regulations (310 CMR 9.00), as provided in 301 CMR 23.00 and 310 CMR 9.34.

Floor Area of FPAs

Requirement 4 of the Municipal Harbor Plan mandates that 40 percent of the aggregate building footprint of the buildings on Parcels 4, 6, and 7 be dedicated to FPAs. FPAs located on the second floor of the hotel approved for Parcel 4 are counted toward the 40 percent requirement.

Upon completion of the Biomedical Research Center, the aggregate building footprint of the proposed buildings on Parcels 4, 6, and 7 will be approximately 212,500 square feet. Forty percent of this aggregate building footprint, including areas on the second floor of the hotel to be devoted to FPAs, is approximately 85,000 square feet.

The floor area approved for FPAs in the hotel on Parcel 4 is approximately 72,500 square feet. The floor area approved for FPAs in Building A on Parcel 7 is approximately 7,000 square feet. Approved FPAs in the hotel and Building A total 79,500 square feet. Therefore, the floor area proposed to be devoted to FPAs for Buildings B and C is 7,000 square feet.

Location of FPAs

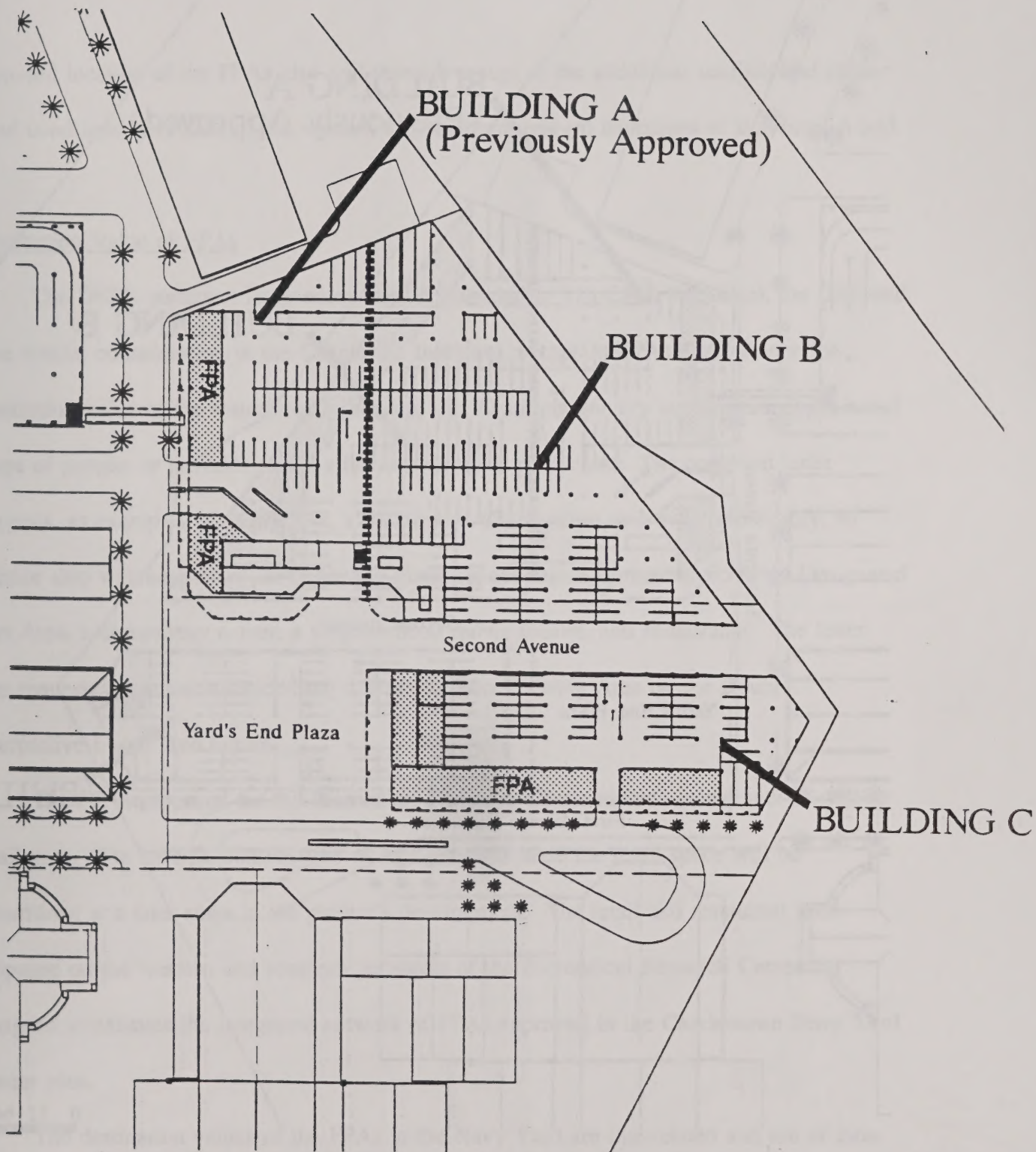
Requirement 4 also provides that the ground floor interior space within 100 feet of the project shoreline must be devoted to FPAs, unless an alternative location would promote public use and enjoyment of the project site in a clearly superior manner, or is necessary to make ground level space available for upper floor accessory services, or is appropriate to accommodate and avoid detriments to water-dependent use. The DEP's comment letter requests an analysis of how the conditions of Requirement 4 can be achieved in the proposed project if the ground floor of Buildings B and C is used for parking for the Biomedical Research Center.

The FPAs planned for the Biomedical Research Center are shown on Figure ___ and are proposed to be located:

- o along Sixteenth Street in Building A, which will be connected to Building B;
- o on the plaza in view of the proposed hotel and aquarium, and
- o along the last block of First Avenue, the Navy Yard's principal commercial corridor.

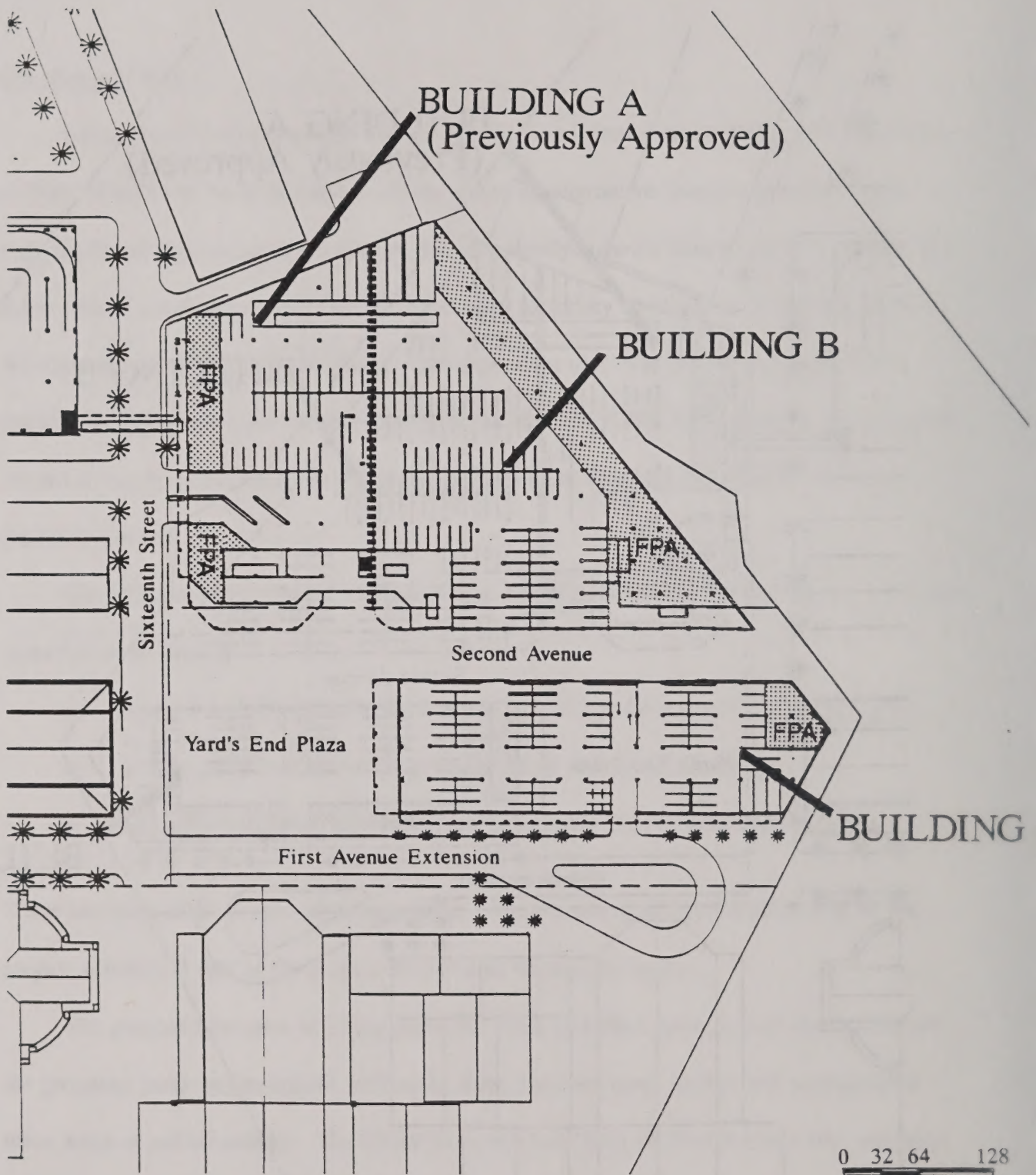
These locations offer certain advantages over a location along the northeastern side of the project within 100 feet of the project shoreline as shown on Figure ___.

The proposed location of FPAs along the Plaza and First Avenue, and within view of the proposed hotel and aquarium, will make these facilities more visible and accessible to these areas of public activity. The FPAs lining the last block of First Avenue also will help to draw pedestrians down the Avenue to the water's edge. The proposed uses for these FPAs are restaurant and retail uses, which benefit from visibility in areas of public activity and serve to enhance the public's enjoyment of those areas. Locating these FPAs along the far side of the Biomedical Research Center will separate them from casual pedestrian view. The



GROUND FLOOR PLAN
NAVY YARD RESEARCH CENTER
PROPOSED LOCATION FPAs

FPA = Facilities of Public Accommodation



GROUND FLOOR PLAN
NAVY YARD RESEARCH CENTER
FPAs ALONG LITTLE MYSTIC CHANNEL

FPA = Facilities of Public Accommodation

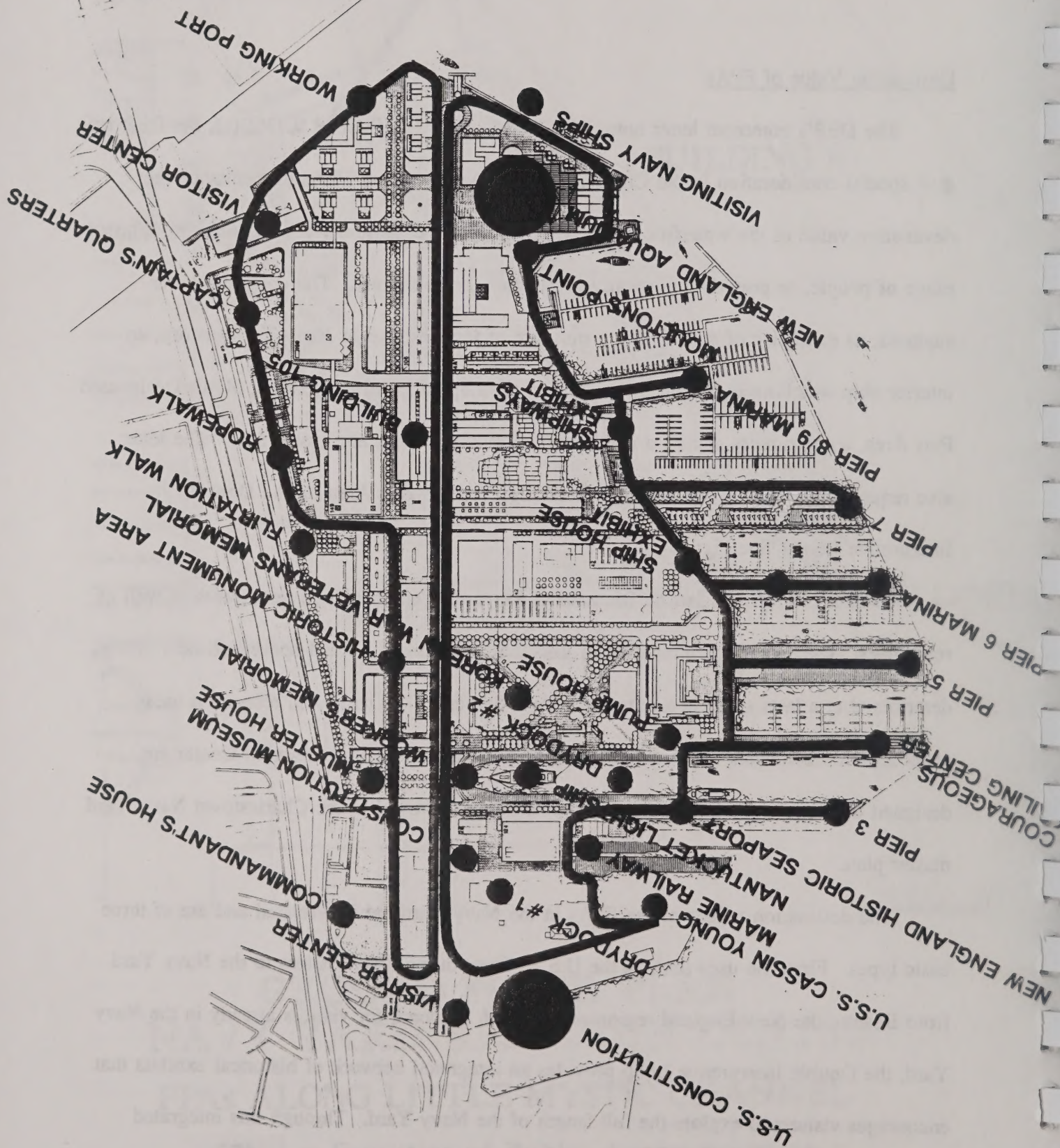
proposed location of the FPAs also will take advantage of the additional sunlight and milder wind conditions available on the western and southern leeward exposures of Buildings A and

Destination Value of FPAs

The DEP's comment letter notes that, as provided in 310 CMR 9.53(2)(c), the DEP will give special consideration in the Chapter 91 licensing process to FPAs that enhance the destination value of the waterfront by serving significant community needs, attracting a broad range of people, or providing innovative amenities for public use. The comment letter suggests, as examples of such FPAs, a museum of Charlestown or Navy Yard history, an interior ship watching room for observing maritime operations in the Mystic River Designated Port Area, a community center, a neighborhood movie theatre, and restaurants. The letter also requests information concerning a Working Port Viewing Area on the Double Interpretive Loop. See Figure ____.

The FPAs proposed for the Biomedical Research Center include restaurants as well as retail uses. The specific combination of uses that will lease the retail space will be determined at a later stage in the project's development. The retail and restaurant uses proposed on the western and southern perimeter of the Biomedical Research Center are designed to enhance the integrated network of FPAs approved in the Charlestown Navy Yard master plan.

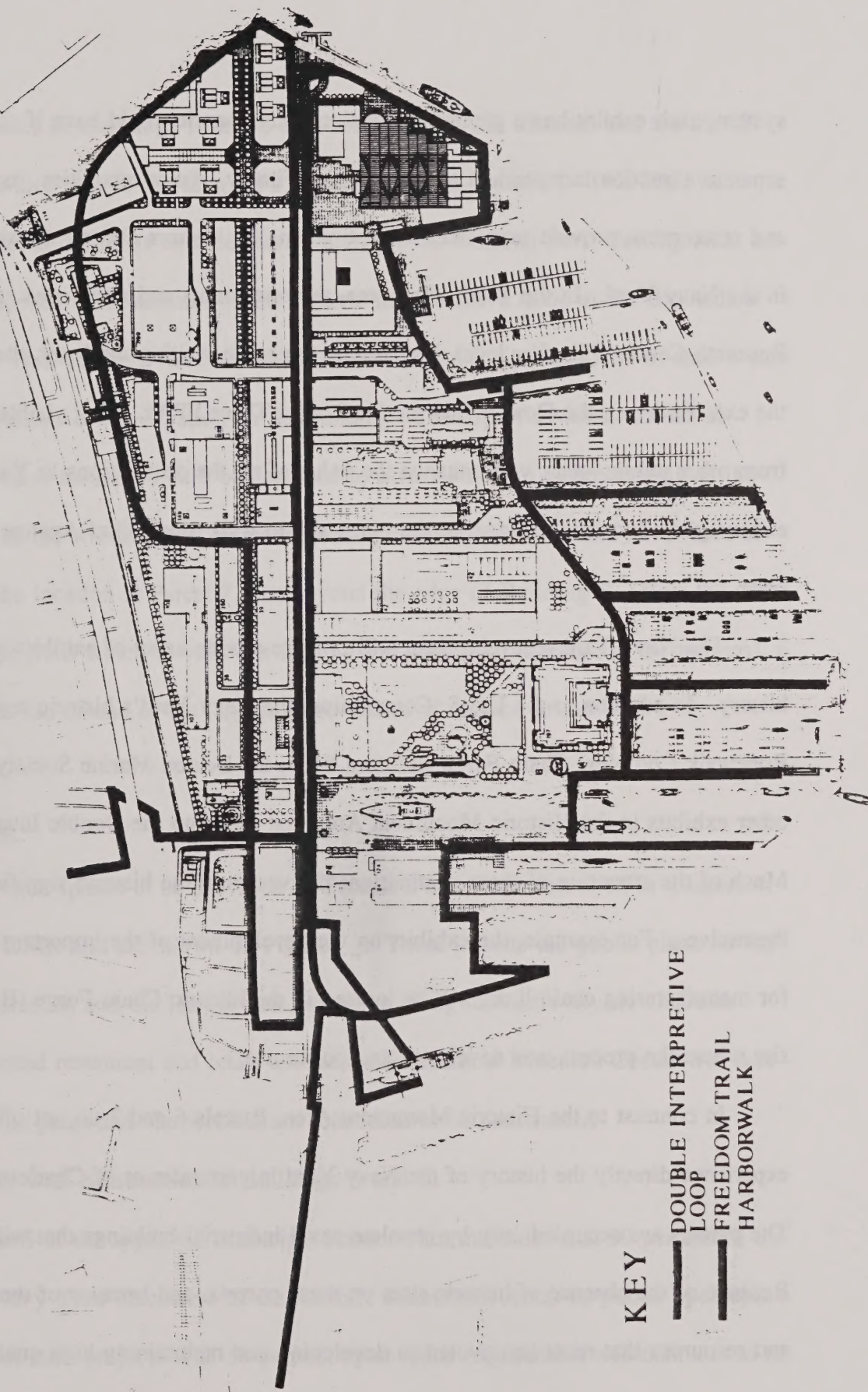
The destination values of the FPAs in the Navy Yard are interrelated and are of three basic types. First, the uses such as the U.S.S. Constitution draw visitors to the Navy Yard from Boston, the New England region and beyond. Second, for visitors already in the Navy Yard, the Double Interpretive Loop provides an integrated network of historical exhibits that encourages visitors to explore the full length of the Navy Yard. Through this integrated



DOUBLE INTERPRETIVE LOOP, FREEDOM TRAIL AND HARBOR WALK

KEY

- DOUBLE INTERPRETIVE LOOP
- FREEDOM TRAIL
- HARBORWALK



system, each exhibit has a greater destination value than it would have if considered as a separate attraction independent of the others. Finally, visitor amenities, such as retail stores and restaurants, provide supplemental destinations for visitors already drawn to other facilities in the Navy Yard. In the Yard's End area, the restaurants and retail uses at the Biomedical Research Center will offer local destinations to people visiting the hotel, the Aquarium, and the exhibits along the Double Interpretive Loop. These FPAs, being visible and accessible from other public areas, will enhance the value of all the destinations in Yard's End and will encourage pedestrians to linger at the plaza and to walk along First Avenue to the water's edge.

The Navy Yard redevelopment will provide a wide array of exhibits on the area's local history. In addition to the U.S.S. Constitution, the Navy Yard's historic resources include the Ropewalk Complex, Chain Forge Building #105, the Boston Marine Society Museum, and other exhibits in the Historic Monument Area that make up the Double Interpretative Loop. Much of the attraction of these destinations derives from the historic significance of the sites themselves. For example, the exhibits on the development of the important "die-lock" system for manufacturing chain links will be located in the historic Chain Forge (Building #105), the site where the process was developed and put to use.

In contrast to the Historic Monument Area, Parcels 6 and 7 do not offer opportunities to experience directly the history of the Navy Yard in particular or of Charlestown in general. The parcels are occupied only by obsolete naval industrial buildings that will be demolished. Because of the absence of historic sites on these parcels, and because of the significant effort and resources that must be devoted to developing and maintaining high quality historic exhibits elsewhere in the Historic Monument Area, the BRA is not proposing a museum use for the FPAs at the Biomedical Research Center.

The water sides of Buildings B and C face the Little Mystic Channel and the Mystic Pier #1 Building which is part of Massport's Moran Container Terminal. This Pier, which is currently not in use, is the focus of little marine activity. A Working Port Viewing Area on Harborwalk is proposed as an addition to the Double Interpretative Loop at the Biomedical Research Center. This Viewing Area would be located at Parcel 7. The focus of such a stop would be the operations of the Mystic Pier #1 Building of Massport's Moran Container Terminal. Interpretive exhibits would be designed to give visitors an understanding of the industrial aspects of the working port, as contrasted with the recreational and naval uses of the waterfront. The location at Parcel 7, just beyond the edge of Building B, offers the most advantageous angle from which to view the loading and unloading of cargo at the terminal, a process that makes use of one of the largest cargo cranes of its kind in the U.S.

b. Open Space

The public open spaces to be provided on Parcels 6 and 7 are described in Chapter 4, Section D of this DEIR and are shown on Figure ___. These include the public plaza on the western side of Parcel 6, and the Harborwalk extension along the Little Mystic Channel. Some of the proposed restaurant and retail uses at the Biomedical Research Center will face onto the plaza. The plaza and Harborwalk are scheduled to be constructed contemporaneously with construction of Buildings B and C.

Requirement 3 of the approved Municipal Harbor Plan mandates that 50 percent of the total area of the Navy Yard (exclusive of the Historic Monument Area) be public open space upon completion of each project. The 50 percent open space requirement will continue to be met -- and surpassed -- upon completion of Buildings B and C, as shown in Chapter ___ of this DEIR.

c. **Building Massing, Public Views, Wind and Shadow Impacts**

The Scope for this DEIR requests site and floor plans for Buildings B and C, showing cross-sectional views and elevations of floor levels, an inventory of existing and proposed sight lines, together with design alternatives for the First and Second Avenue view corridors using pedestrian-level perspectives, and design alternatives for reducing wind and shadow impacts. The DEP's comment letter requests that alternatives considered include an open pedestrian way through the Second Avenue Corridor with no links between the two buildings. The Scope and DEP comment letter also request that the DEIR consider the recommendation that the facade of Buildings B and C be open to a depth of 20 to 30 feet for the first two or three stories to mitigate wind impacts.

Chapter 2; Figures _____, show site plans and floor plans of Buildings B and C with cross-sectional views and elevation data.

The building massing described in this DEIR has been developed to comply with the historic preservation requirements of the *Amendment to Design Guidelines for the New Development Area, Charlestown Navy Yard*, dated July 19, 1991, which was approved by the Massachusetts State Historic Preservation Officer and the Advisory Council on Historic Preservation (the Amended Design Guidelines). To preserve streetscapes, view corridors, and the historic character of the Navy Yard, building heights are limited to 155 feet for Building B and 110 feet for Building C. These heights comply with the height limitations of the Amended Design Guidelines and the Harborpark Zoning.

The Proposed Project opens a pedestrian-level view corridor along Second Avenue to the water. To allow an unobstructed view, no connection is proposed between Buildings B and C across Second Avenue. The view to the water is currently blocked by Building #165,

a vacant and derelict structure, which will be demolished. The Proposed Project also incorporates a view corridor along First Avenue to the water. Existing and proposed view corridors, including pedestrian-level perspectives, are inventoried and described further in Chapter 4, Section A, as required by the Scope for this DEIR.

Analysis of pedestrian-level wind impacts, based on wind tunnel testing for the full build-out of the Biomedical Research Center, is presented in Chapter 4, Section B.

[Summary of conclusions and proposed mitigation.]

The Scope for this DEIR, and the DEP's comment letter, request that the proposed designs take into consideration the recommendation (based on wind tunnel studies of Yard's End for the master plan FSEIR) that the first two or three stories out of the base of Buildings B and C be left open to a depth of 20 to 30 feet along the Harborwalk. As discussed in Chapter 4, Section B, the location of open-air parking facilities on the first three floors of Buildings B and C will help to achieve the recommended mitigation of wind.

Open-air parking facilities are preferable at this location than for example, an arcade space. As has been borne out in other projects in Boston, rather than shielding pedestrians from inclement weather, arcades in a cold-weather climate such as Boston's can actually worsen the pedestrian's experience. Arcades do not allow sunlight to reach the pedestrian and after a rainstorm, the absence of sunlight can result in the arcade remaining damp. Arcades can tunnel wind, exacerbating the experience of cold weather. These conditions produce a pedestrian space that can be damp, cold, dark, and uninviting. Arcades are more suited to hot climates where they create a cool, shaded space to shield the pedestrian from the mid-day sun. Also, while not an environmental issue, retailers prefer the visibility of storefronts at the streetwall, rather than set back within the confines of an arcade. Arcades can impede the goal of generating more foot traffic in a location.

5. Historic Licensing Information

The DEP's comment letter requests certain site-specific historic tidelands information to be used for Chapter 91 licensing purposes. The letter requests:

- o historic high and low water shorelines;
- o present shorelines;
- o federal and state harbor lines;
- o existing Special Acts of the Legislature relevant to the site; and
- o existing Chapter 91 licenses.

Historic high and low water lines, including those for the Yard's End area, are shown in Figure __, which incorporates several revisions to the information presented in the FSEIR as a result of further discussion of the following source material with DEP:

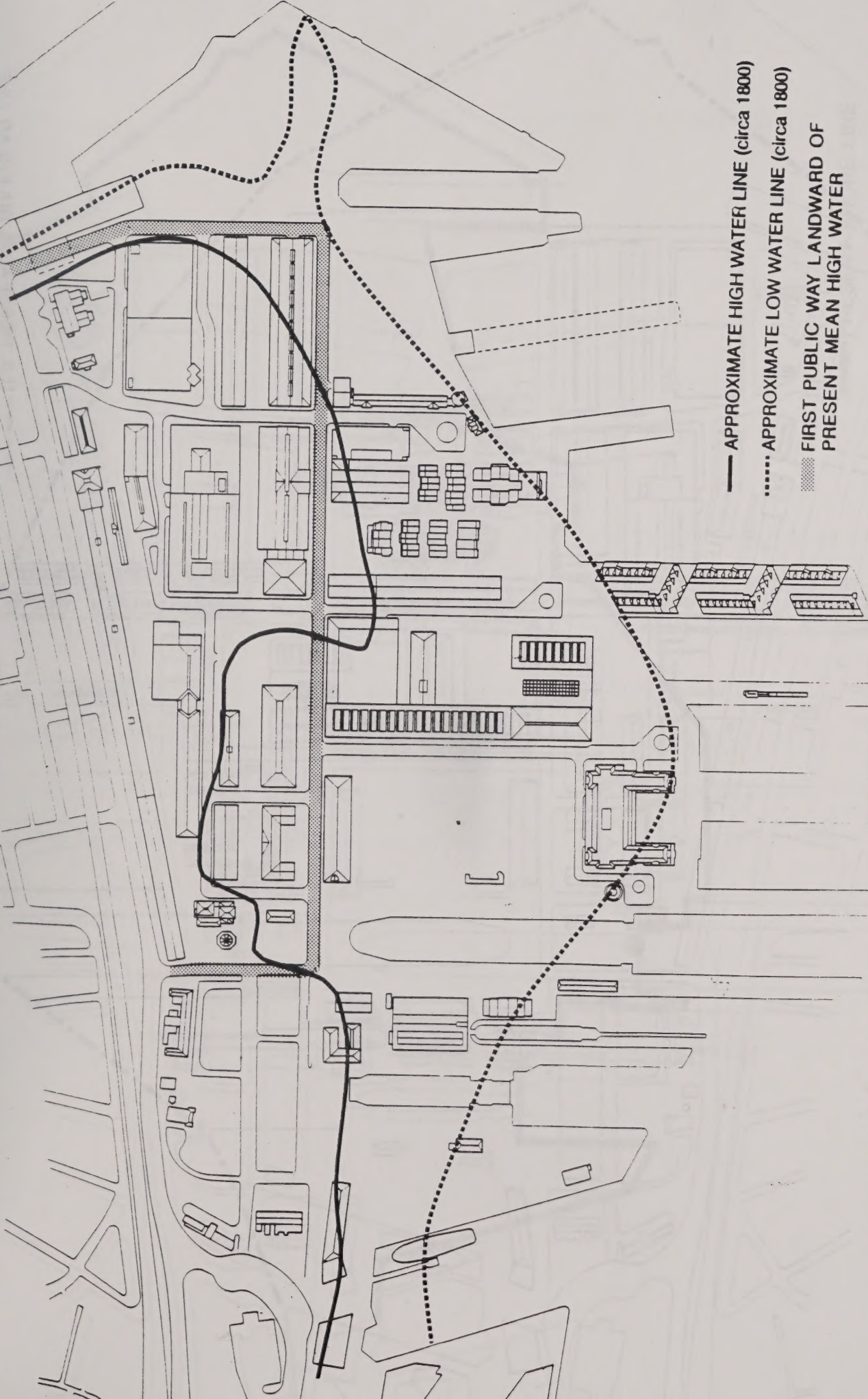
- o Carlton Osgood Plan of 1802
- o Bearss Historical Base Map #1, CNY Site - circa 1800, completed for NPS.
- o Bearss Historical Base Map #2, CNY Site - circa 1812, completed for NPS.
- o Department of the Navy, Bureau of Yards and Docks, Drawing #524983, dated June 14, 1965.

Federal harbor lines are shown in Figure __, and state harbor lines in Figure __. Present shorelines are shown in Figure __.

For purposes of the MEPA process, this EIR has been drafted on the assumption that the Proposed Project would be located entirely on filled tidelands and therefore would be subject to the jurisdiction of Chapter 91. See Appendix __, letter from Paul Barrett to Vivian Li, dated October 7, 1991. This assumption is not intended to preclude the presentation of different conclusions regarding the nature or extent of Chapter 91 jurisdiction in later Chapter 91 licensing proceedings.

Appendix __ contains Chapter 556 of the Acts of the 1978, An Act Terminating the Commonwealth's Rights, Title and Interest in Certain Lands Upon Acquisition thereof by the Government Land Bank or the Boston Redevelopment Authority.

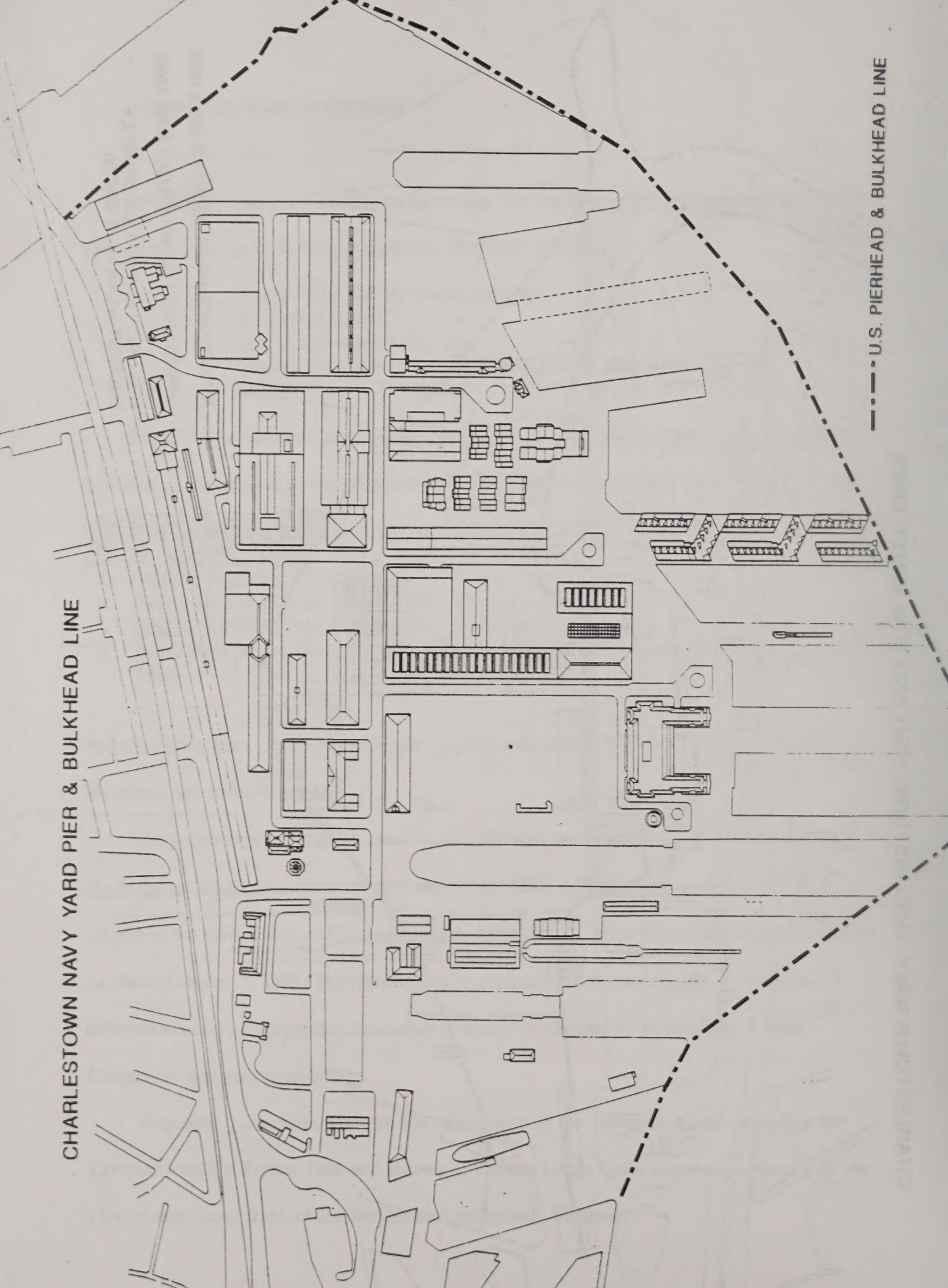
CHARLESTOWN NAVY YARD HISTORIC HIGH AND LOW WATER LINES



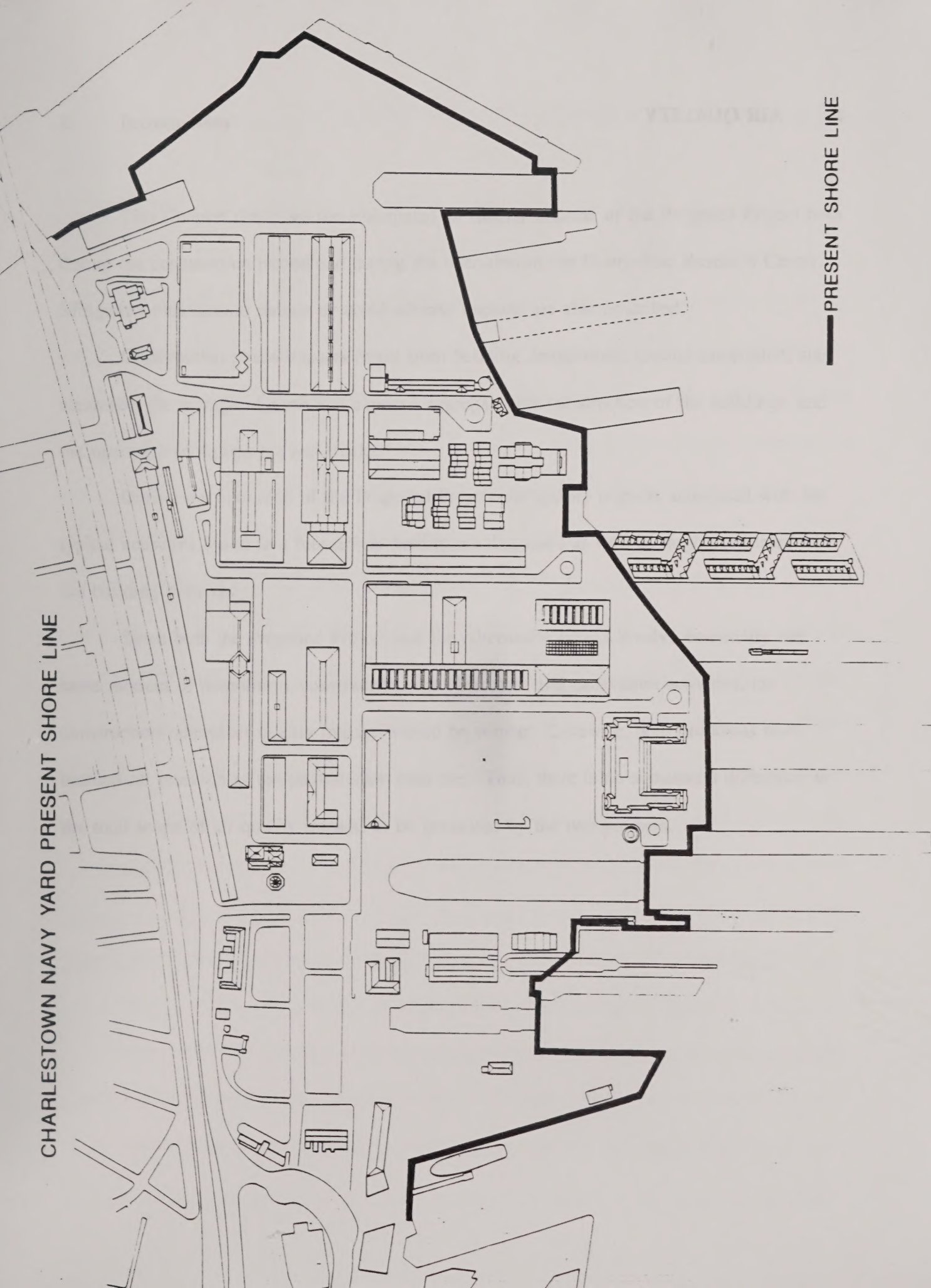
- APPROXIMATE HIGH WATER LINE (circa 1800)
- APPROXIMATE LOW WATER LINE (circa 1800)
- ▨ FIRST PUBLIC WAY LANDWARD OF PRESENT MEAN HIGH WATER

CHARLESTOWN NAVY YARD PIER & BULKHEAD LINE

--- U.S. PIERHEAD & BULKHEAD LINE



CHARLESTOWN NAVY YARD PRESENT SHORE LINE



— PRESENT SHORE LINE

F. AIR QUALITY

THE FOLLOWING INFORMATION IS FOR YOUR INFORMATION ONLY AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.

THIS INFORMATION IS FOR YOUR INFORMATION ONLY AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.

1. Introduction

This Chapter describes the anticipated air quality impacts of the Proposed Project both during the construction period and during the operation of the Biomedical Research Center. Mitigation measures to reduce or avoid adverse impacts are also described.

Construction phase impacts result from building demolitions, ground excavation, site clearance, the storage of earth and exposed aggregate, the construction of the buildings, and the operation of equipment and trucks.

During the operation of the Proposed Project, air quality impacts associated with the typical activities found in a biomedical facility are discussed as well as those associated with the building systems.

Since both the Proposed Project and the Alternative would involve essentially the same amount of demolition, construction, site clearance, and excavation activities, the construction-related air quality impacts would be similar. Likewise, both proposals have biomedical research as the predominant land use. Thus, there is no substantial difference in the total scope of air quality impacts to be generated by the two projects.

2. Impacts Related to Demolition and Construction

During the construction period of Buildings B and C of the Biomedical Research Center, there would be minimal short-term impacts on air quality. An increase in airborne particulate matter would occur in the form of fugitive dust from building demolitions, ground excavation, the storage of earth and exposed aggregate, and construction activities. In addition, pollutant emissions will be generated from the operation of construction equipment and vehicles.

The major dust-emitting activities would occur during the following construction activities: demolition, site clearance and excavation, the loading of rubble into trucks, and the movement, hauling, and storage of dirt and aggregate. The amount of emissions and extent of dispersion would depend on several factors, including the properties of the emitting surfaces (e.g., soil silt content, moisture content, and surface area exposed), local meteorological variables, particulate dimensions, the construction practices and transfer methods employed, and mitigation measures. However, it is anticipated that emissions from excavation activities would not be significant because of the minimal amount of foundation excavation programmed due to the presence of some contaminated soils and the proposed capping of these soils.

Additional temporary air quality impacts can be expected to occur from the exhaust of construction machinery operating on-site and from trucks travelling to and from the site. Generally, construction machinery and heavy-duty construction trucks are diesel-operated. Since for diesel-powered vehicles carbon monoxide emissions, which cause the greatest local impact, are typically one-third the rate of emissions from automobiles, the total carbon

monoxide emissions on a typical day would not be significant compared to emissions from automobiles on nearby streets.

Exposed earth removed in the process of excavation, gravel, sand, and concrete dumped on the site are potential dust emitters during mechanical disturbances and transfer operations, as well as during high winds. In either case, the bulk of the dust would be emitted shortly after the initial loading or disturbance because it is during this period that the fine particles are most easily dislodged. Subsequent rainfall moistens the interior of the storage mounds, and the moisture is released very slowly. Emissions from storage mounds and exposed ground surfaces are commonly related to the regional precipitation/evaporation (PE) index. The PE index is a measure of the precipitation to evaporation ratio and, in the contiguous United States, ranges from a low of 10 (highly conducive for dust particles) in the arid southwest to approximately 170 (not conducive for dust particles) in the upper northeast. In the Boston area, the PE index is 132, well above the average for the U.S. as a whole. This would indicate the potential for only a moderate amount of fugitive dust generation from construction operations if standard construction dust mitigation measures are enforced.

For heavy construction operations, the U.S. Environmental Protection Agency (EPA) has conservatively estimated an uncontrolled emission factor of 1.2 tons of suspended dust emissions monthly per acre of construction. This value is equivalent to a climate with a PE index of 50. Since emissions are inversely proportional to the square of the PE index, a value of 0.17 tons per acre of construction per month can be assumed for the Charlestown Navy Yard development area utilizing the local PE index of 132, or a maximum of 43.1 pounds per day for the entire 3.8-acre project site.

With respect to air quality impacts from demolition, a Boston-area study* has found that approximately 90 percent of demolition-generated particulate matter settles to the ground

in the immediate vicinity of a demolition site and is not dispersed into the atmosphere. This is because the dust plume created is generally impacted both horizontally and vertically by the presence of neighboring buildings. Thus, the greatest impact would be confined to receptors near the demolition activities and most likely would involve the soiling of exterior surfaces of adjacent buildings. With respect to the demolition of the five buildings on-site, it is estimated that the demolition would produce a total of approximately 11 tons of particulate matter assuming no control or mitigation of dust emissions during demolition.

The size of the particulate matter is also important. Particulates of 10 microns or smaller in diameter, referred to as PM-10, is respirable and thus could be hazardous to human health, particularly to elderly people, people with influenza, asthmatics and individuals with chronic heart or lung disease. Evaluation of particle size in the Boston-area study indicated, however, that only 10 percent of particulates were 10 microns or smaller in diameter. Currently, existing DEP air quality data indicate that ambient PM-10 concentrations measured at the DEP monitoring station located in City Square, Charlestown, do not violate the annual Ambient Air Quality Standard (AAQS) of 150 micrograms per cubic meter and the 24 hour AAQS of 50 micrograms per cubic meter. With adequate mitigation measures, as described herein, activities at the project site are not expected to cause a violation of the AAQS for PM-10 particulates.

Another potential pollutant is asbestos (a group of magnesium silicate mineral fibers), often used in the past as an insulation or a fire-proofing material. When present in a friable, or free-floating state, the asbestos fibers can be inhaled. The inhalation of asbestos fibers is associated with a number of serious health problems including asbestosis, lung cancer, mesothelioma, and pleural plaques. Therefore, extreme precautions are required in the

handling and removal of any asbestos material found in any of the buildings scheduled for demolition.

Groundwater monitoring involves the use of specially constructed monitoring wells to detect and measure the presence and concentration of contaminants in the subsurface. The wells are installed in the ground and are connected to a monitoring system that allows for the collection and analysis of groundwater samples. The monitoring system typically consists of a network of wells, a data logger, and a computer system that stores and analyzes the data. The data logger is connected to the wells and records the level of contaminants in the groundwater. The computer system then processes the data and generates reports that show the results of the monitoring. Groundwater monitoring is an important part of environmental remediation because it allows for the early detection of leaks and spills, and it helps to ensure that the contamination is contained and removed. Groundwater monitoring is also used to assess the effectiveness of remediation efforts and to determine when it is safe to remove the monitoring system.

Groundwater monitoring is a complex process that requires a lot of planning and coordination. The first step is to identify the areas that need to be monitored. This is typically done by conducting a site assessment that identifies the potential sources of contamination and the areas that are most at risk. Once the areas to be monitored have been identified, the next step is to design the monitoring system. This involves determining the number and location of wells, the type of monitoring equipment to be used, and the frequency of monitoring. The monitoring system is then installed and the monitoring begins. The data collected from the monitoring system is used to assess the level of contamination in the groundwater and to determine if any action is needed. If action is needed, the monitoring system can be used to track the progress of the remediation efforts and to ensure that the contamination is being removed. Groundwater monitoring is an ongoing process that requires regular maintenance and data analysis. It is an important part of environmental remediation and helps to ensure that the environment is protected and that the public is safe.

3. Impacts during Operations

Biomedical research involves the use of varying amounts of chemicals, radioactive materials, and volatile organic compounds which potentially could release hazardous air contaminants to the atmosphere through evaporation and working losses.** At this time, however, the specific types of biomedical research which will be carried out in the proposed facility are unknown, and therefore it is difficult to state the composition of the exhausts. Generally, in such research laboratories, several families of chemicals are used for cleaning and staining along with several reagents for different biochemical reactions. These include, but are not limited to, mineral acids, organic acids, alcohols, aldehydes, caustics, amines, aromatic solvents, ketonic solvents, chlorinated solvents, petroleum solvents, radioactive substances, and other miscellaneous solvents and chemicals. Biomedical research is often accompanied by the manipulation of micro-organisms.

Research Activities

The control and containment of emissions from research activities is the legal and operational responsibility of the party which is engaging in the activity that is producing the emissions. Moreover, the filtering of the exhaust and any other mitigation that is required due to the emissions is the responsibility of the research entity. The following federal, state, and local authorities typically would be among those regulating and/or requiring permits or licenses to the entities performing biomedical research in the Proposed Project.

Federal

Department of the Treasury

Alcohol, Tobacco, and Firearms Division:

Acquisition and use of laboratory alcohol

Drug Enforcement Agency:

Institutional Review Board oversight

Environmental Protection Agency:

Air pollution review

Food and Drug Administration:

Approval for the acquisition, use, and disposal of regulated substances

National Institutes of Health:

Permits for the use, storage, and disposal of chemicals and radioactive materials

Nuclear Regulatory Commission:

Approval of plans for the acquisition, use, and disposal of radioactive materials.

Occupational Safety and Health Administration:

Review of issues of employee and work place safety

State

Department of Environmental Protection:

Air quality discharge permits

Department of Labor and Industries:

Employee health and safety review

Department of Public Health:

Review of public health issues

City

City of Boston Department of Health and Hospitals:

License and permit approvals

City of Boston Department of Health and Hospitals:

Boston Biohazards Committee:

Monitoring of recombinant DNA research/review of all applications for DHH permits

Building Systems

Space heating for the buildings and one or more emergency generators for backup electrical power will be provided for the Proposed Project. However, the type of fuel, energy source, and energy consumption have not been determined as yet. Other process equipment also may be installed in the Proposed Project. In order to ensure that the emissions from the various equipment do not cause a condition of air pollution, the equipment installations would be subject to the provisions of the Massachusetts Air Pollution Control Regulations. (CMR Title 310, Section 7).

Pursuant to these regulations, plans and specifications must be submitted to the Division of Air Quality of the Massachusetts DEP for review and approval prior to the construction or installation of a) any machinery or equipment (including boilers) that has the potential to emit air contaminants above the thresholds specified in 310 CMR 7.02, or b) an emergency generator which has an energy input capacity greater than 3,000,000 BTU/hr. In addition, preconstruction approval for the Proposed Project would be required from the DEP if its operations would result in potential emissions equal to or greater than one ton per year of either any criteria air contaminant or the sum of the emissions of all other air contaminants excluding products of combustion of any fuel utilization facility. 310 CMR 7.02(4)(c).

4. Mitigation Measures related to Demolition and Construction

Mitigation measures which will be employed to reduce fugitive dust emissions from the various preconstruction and construction activities include:

- o minimal storage of excavated soil and aggregate on the site
- o periodic wetting of areas of exposed soils on a scheduled basis
- o minimizing the disturbance of loose materials
- o locating aggregate storage piles away from pedestrian walkways
- o covering trucks used for the transportation of excavated material and demolition debris
- o periodic street and sidewalk cleaning to minimize dust accumulation.

In compliance with the construction provisions of the Massachusetts Air Pollution Control Regulations (310 C.M.R. 7.09), dust will be controlled as needed by spraying the construction site with water. In addition, the erection of solid fencing around the construction site to shield public areas from construction activities can minimize the spread of fugitive dust off-site.

During building demolition and rubble-removal operations, the use of extensive or continuous wetting (water spray) can reduce dust levels by as much as 80 percent. Average control (intermittent wetting, with the most intensive wetting occurring during the actual razing of a structure) can result in a 50 percent reduction of dust generation. Similarly, the wetting down of exposed ground areas when the surface is dry and during the land clearance and excavation phases can reduce dust emissions by 50 percent. Notification must be given to the Massachusetts DEP 20 days prior to the start of any building demolition or construction activity, as required by 310 C.M.R. 7.09(2).

For the handling and removal of asbestos material from a building, strict health and safety measures are required by the U.S. EPA, the Massachusetts DEP, and the Massachusetts Department of Labor and Industries (DLI).*** These measures must be followed to prevent workers involved in the removal operations from becoming contaminated. Both the EPA and

the DEP must be notified 20 days prior to the commencement of the demolition. Workers must wear protective clothing and respiratory masks, and decontamination procedures must be maintained at the site. The area containing the asbestos material must be sealed off and wetting agents used to wet down the asbestos material. The asbestos material must be dismantled and placed in double-lined plastic bags marked as hazardous waste. Each bag must be properly labeled to provide information on its contents and to specify its destination.

5. Mitigation Measures Related to the Operation of the Project

Although the tenant occupancy, and thus the specific types of biomedical research to be carried out in the Proposed Project, is not yet known, it can be assumed that some small amounts of hazardous gaseous emissions may be produced by the research activities. To minimize these emissions, special fume hoods and ventilation ducts, separate from the buildings' normal ventilation systems, will be required to prevent the discharge of any contaminants into the atmosphere.

Similarly, any research activity using radioactive substances which might produce a gaseous effluent will require the use of radioactive fume hoods and special filtered ventilation ducts to ensure the proper control of emissions from the laboratories. For any activity involving recombinant DNA research, the use of appropriately sized filters (e.g., 0.2 microns) would remove all recombinant organisms from the air. Appropriate monitoring by the tenants and strict compliance with the applicable regulations and license requirements of the NIH, NRC, DEP, and other regulatory agencies should ensure the maintenance of air quality standards.

Since the air handling equipment and the ventilation system for the Project are not yet engineered, the specifics of their design are unknown at this time. However, it can be expected that the fresh air intakes would be located in the lower levels of the facility and that all building exhausts would exit from the mechanical penthouses on the roof. Necessary separations between fresh air intake and laboratory air exhaust locations will be maintained to prevent the possible contamination of the intake air.

Furthermore, compliance with the conditions of the air quality permits issued by the DEP pursuant to 310 CMR 7.02, including the installation of any required air pollution

control equipment, should ensure that the operation of the Project would not cause a condition of air pollution in violation of 310 CMR 7.01.

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- * City of Boston, Office of Community Development, Final Environmental Impact Statement for the Clearance of Unsafe Buildings - Community Development Block Grant Program, prepared by Resource Planning Associates, Inc., Cambridge, January 1976.
 - ** The information presented herein regarding biomedical research emissions and regulations is based on information found in the Boston Science Center Draft Project Impact Report/Draft Environmental Impact Report (EOEA No. 7111), prepared by Sasaki Associates, Inc., et al., Congress Group Ventures, December 1988, pg. 107.
 - *** EPA: 40 CFR Part 61, Subpart M - National Emission Standard for Asbestos.
DEP: 310 CMR 7.15: U Asbestos.
DLI: 453 CMR 6.00: The Removal, Containment and Encapsulation of Asbestos.

G. SOLID WASTE AND HAZARDOUS MATERIALS

1. Introduction

This Chapter presents a description of the anticipated types and quantities of solid waste and hazardous materials to be generated by the Proposed Project.

Solid waste impacts are discussed separately for the construction phase and the operations phase of the Proposed Project. The construction phase includes waste produced during the demolition of existing on-site structures, site clearance and preparation, excavation, and the construction of Buildings B and C. The operations phase includes solid waste produced during the operation of the completed buildings. The impacts from normal commercial waste as well as the various forms of biomedical waste are addressed.

The impacts related to hazardous materials are also described for both the construction and operations phases of the Proposed Project. The potential for the existence of contaminated soil is also described.

As requested in the Secretary's Certificate, the agencies having regulatory responsibility for the management and disposal of the solid waste and hazardous materials are identified in this Chapter. There is also a discussion of how the solid waste and hazardous materials will be managed and disposed.

Total build-out, as measured in square feet of gross floor area, of the Proposed Project and the Alternative is comparable, and both proposals have biomedical research as the predominant land use. Thus, there is no substantial difference in the total scope of solid waste and hazardous materials impacts to be generated by the two projects.

2. Impacts during the Construction Phase

As described in Section E.3 of the ENF, the Proposed Project site currently contains, and previously contained, both aboveground and subsurface fuel and oil storage tanks. Former uses of the existing site buildings included oil and acid storage, incineration, battery charging, and abrasive blasting.

As described in the Charlestown Navy Yard Redevelopment DSEIR, hazardous materials issues associated with the Proposed Project are minimal, and these have been addressed previously by the Department of Environmental Protection (DEP). In August 1988, the BRA notified the DEP of the findings of the Phase I Preliminary Site Investigation Analysis of Parcels 5, 6, and 7 in the Charlestown Navy Yard. This Preliminary Analysis revealed the presence of hazardous materials -- in particular, concentrations of lead in subsurface soils, and PCBs in certain areas of the three parcels. The types and concentrations of the compounds detected at these sites are consistent with the previous site usage, and do not constitute an imminent hazard either to the environment or to human health, safety, or welfare.

Due to the low concentration of contaminants discovered, DEP declared the Charlestown Navy Yard a non-priority disposal site, and, on January 29, 1991, granted the BRA a waiver pursuant to the Massachusetts Contingency Plan under Massachusetts General Laws, Chapter 21E, for the remediation of hazardous materials on Parcels 5, 6, and 7. Specifically, this waiver requires removal of the existing fuel and oil storage tanks described above, and allows the BRA to cap subsurface materials in accordance with DEP standards. If the BRA or a designated redeveloper decides to change the stipulated method of remediation, an amendment to the waiver would be required under MGL chapter 21E.

The U.S. Army Corps of Engineers will assume responsibility for and manage certain of the planned building demolition, debris removal, and containerized hazardous/toxic waste (storage tank) work at Parcels 6 and 7. In the "Findings and Determination of Eligibility," dated October 18, 1991, the New England Division of the U.S. Army Corps of Engineers found the BRA-owned portion of the former Boston Naval Shipyard (Site No. DO1MA000100) to be eligible for consideration under the Defense Environmental Restoration Program - Formerly Used Defense Sites (DERP-FUDS).

Demolition

Construction of the Proposed Project will involve the demolition of all existing structures currently on-site. The various demolitions will generate brick, concrete, wood, metal, glass, and/or other solid waste, some of which may be suitable for recycling.

Excavation

After demolitions are completed, excavation will occur which will involve only a limited disturbance of existing soils given the proposed designs for the foundation and the elevated ground floor. Excavation activities will remove a small amount of existing fill which will need to be removed from the site if it cannot be reused. Because of past industrial uses in the Charlestown Navy Yard, samples of excavated soil will be collected for analysis to determine soil quality. Based on its chemical quality, excavated soil would be segregated before disposal, and any soils that contain oil or other hazardous materials would require disposal in accordance with applicable DEP regulations. Soils that do not contain oil or other hazardous materials can be disposed of at a DEP-approved solid waste landfill. The presence of high sodium and chloride

content in the soils, because of potential contact with marine waters, may restrict disposal of the excavate to those sites without an hydraulic connection to fresh water.

Construction of the Buildings

After excavation, the construction of Buildings B and C will generate several types of solid waste and debris, e.g., wood, plastic sheeting, wrapping materials, and other trash. To prevent problems with accumulation, all debris will be required to be removed frequently from the site, and disposed of at either licensed sanitary landfills or approved solid waste facilities in accordance with applicable city and state regulations.

Total construction debris is estimated to be 2,842 cubic yards, based on a generally accepted guideline of 3.50 cubic yards per 1,000 square feet of gross floor area.

3. Impacts during the Operation of the Project

The Proposed Project will be marketed to attract tenants from the broad industrial sector of biomedical research. It is common for companies and institutions engaged in biomedical research to require the use of chemicals, radioisotopes, and biological materials, but these are used in quantities quite small compared with manufacturing or processing companies. The use of all chemicals, radioisotopes, and biological materials will be governed by applicable city, state, and federal regulations. For example, an MWRA permit is required for sewer usage; the Nuclear Regulatory Commission (NRC) regulates radioisotope handling and storage; the Boston Biohazards Committee, which was established by city of Boston Ordinances in 1981, has guidelines for RDNA research.

Upon completion of construction, solid waste generated as a result of the operation of the proposed biomedical research and laboratory uses and accessory uses is estimated to be 1,080 tons per year, based on the generally accepted guideline of 1.33 tons per 1,000 square feet of gross floor area. The solid waste will consist primarily of paper. Any biomedical and infectious waste generated by the research and laboratory facilities may be considered hazardous materials, and will be treated appropriately according to state and federal regulations.

4. Mitigation Measures Related to the Construction Phase

In order to minimize, to the fullest extent possible, impacts related to construction activities within the Navy Yard, including those involving the disposal of solid waste and hazardous materials generated during construction, the BRA will require the developer to manage construction activities, and to develop and implement appropriate mitigation measures. For each phase of the construction project, the developer will be required to submit, under Article 31 of the Boston Zoning Code, a detailed analysis of anticipated construction impacts and the measures by which such impacts can be reduced, as well as a Construction Management Plan in compliance with City requirements. Through the implementation of standard mitigation measures, as described below, all construction impacts will be effectively managed.

Demolition debris, excavated soils, and other construction wastes will be disposed of at licensed landfills or solid waste facilities in accordance with the Commonwealth's and the city of Boston's solid waste regulations. Prompt removal of waste materials from the construction sites will mitigate the potential for any problems or unhealthy conditions.

The removal of any hazardous materials, such as asbestos or oil-contaminated soil, will be done by certified contractors in compliance with all applicable state and federal regulations. Any asbestos found in existing structures will be removed in strict accordance with the health and safety measures required by the U.S. Environmental Protection Agency, the Massachusetts DEP, and the Massachusetts Department of Labor and Industries (DLI). A description of the manner in which asbestos is to be removed and disposed of is contained in Section F, Air Quality.

5. Mitigation Measures Related to the Operation of the Project

In order to insure a comprehensive level of compliance by all organizations engaged in similar research at the Proposed Project, tenants will be required to adhere to all federal, state, and local laws and regulations governing the management and disposal of solid waste and hazardous materials. Tenants are also responsible for disclosure of potentially hazardous waste from specific laboratory operations and for obtaining all related permits and approvals, as well as complying with monitoring and reporting requirements.

All research must comply with the applicable regulations promulgated by the National Institutes of Health, the U.S. Food and Drug Administration, the U.S. Department of Agriculture, and the U.S. Environmental Protection Agency.

All companies leasing space at the Proposed Project will be required to retain private, certified waste haulers for chemical waste removal, biological waste removal, and radioactive waste removal. Removal will occur from the loading docks or other designated holding area. All biomedical and infectious waste will be sterilized and disposed of in accordance with applicable state and federal requirements.

While the particular types of waste to be generated during the operation of the Proposed Project is not yet known, there are some typical disposal methods for various types of waste. For example, nonhazardous trash is typically disposed of at a sanitary landfill. Acids and bases are typically neutralized by the building's acid neutralization system separate from the potable water system serving the building. Solvents are usually disposed of by high-temperature incineration off-site. Liquid infectious waste is typically incinerated off-site or in some cases in an autoclave on-site. Solid infectious waste is usually incinerated off-site, as is pathological

waste. Radioactive waste is typically stored off-site until radioactivity decays to background levels and thereafter incinerated off-site.

APPENDICES

Appendix

Wind Study Technical Data

Appendix

**Chapter 556 of the Acts of 1978, An Act Terminating the
Commonwealth's Rights, Title, and Interest in Certain Lands upon
Acquisition thereof by the Government Land Bank or the Boston
Redevelopment Authority**

*Tideland
Navy Yard*

entitled 'An Act Authorizing Certain Bylaws and Amending Certain Acts Relating to the Town of Wellesley', revising referendum procedures and requirements, be accepted by this town?" The polls at any such special meeting shall be opened not later than seven o'clock in the morning and shall be closed not earlier than eight o'clock in the evening, and the check list shall be used in the same manner as in the election of town officers.

SECTION 14. This section and Section 13 of this act shall take effect upon passage of this act. Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 shall take effect as of January 1, 1978. Sections 12, 13, 14 and 15 shall take effect on January 1, 1979. If accepted by a majority of the voters voting thereon in accordance with Section 13, Section 12 of this act shall take effect immediately upon declaration by the selectmen of the vote upon the question, on January first, nineteen hundred and seventy-nine, whichever date is later.

Approved July 22, 1978

Chap. 556. AN ACT TERMINATING THE COMMONWEALTH'S RIGHTS, TITLE AND INTEREST IN CERTAIN LANDS UPON ACQUISITION THEREOF BY THE GOVERNMENT LAND BANK OR THE BOSTON REDEVELOPMENT AUTHORITY.

Whereas, The deferred operation of this act would tend to defeat its purpose, which is to aid private enterprise or public agencies in the speedy and orderly redevelopment of lands within the United States Navy Yard, Charlestown section of Boston in order to prevent continued and further blight, economic dislocation and unemployment and to alleviate the housing shortage; therefore, it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience

Be it enacted, etc., as follows:

Chapter 212 of the acts of 1975 is hereby amended by inserting after section 5, as most recently amended by chapter 432 of the acts of 1976, the following section:-

Section 5A. Notwithstanding any provision of general or special law to the contrary, upon the recording in the Suffolk county registry of deeds of a deed or deeds from the United States of America conveying to the bank or to the Boston Redevelopment Authority as grantee all or any portion of the premises within the United States Navy Yard, Charlestown section of Boston, Massachusetts, now owned in part by the United States of America and in part by the Boston Redevelopment Authority, bounded northwesterly by Little Mystic Channel, easterly and southeasterly by the main channel of Boston Inner Harbor, southwesterly by the Charles River and northwesterly by the lands of others: (a) it shall be deemed conclusively that jurisdiction to said premises vested in the United States of America in accordance with the terms of any special acts whereby the commonwealth ceded jurisdiction to said premises to said United States and, further, that said United States has complied with all conditions imposed by such acts; (b) all right, title and

interest of the commonwealth in and to any such premises shall pass to and vest in the grantee, establishing fee simple absolute title in the grantee, all without further evidence of conveyance by the commonwealth and all interests of the commonwealth are hereby ratified and confirmed in the respective grantees of any such deed or deeds of all or any portion of these premises so recorded prior to the enactment hereof; and (c) all licenses and authority to place fill, to maintain existing fill, to build and maintain bulkheads, to drive piles, to build, extend and widen wharves, piers and other structures on piles or on other support structures or to construct other structures heretofore or hereafter granted under the applicable provisions of chapter ninety-one of the General Laws and all actions of the United States of America taken in respect to placing and maintaining fill or building and maintaining bulkheads, piles, wharves, piers or other structures completed prior to the date of enactment hereof, whether or not so placed, built or maintained in accordance with the applicable provisions of any general or special act, deed, grant or other instrument authorizing or conveying the same and whether or not so placed, built or maintained in accordance with any plans that may have been filed or required to be filed with the commonwealth or any agency or political subdivision thereof, all with respect to said premises, shall be irrevocable and ratified and confirmed in place, the commonwealth hereby waiving any right or claim of action it might have for the recovery of said land or any interest therein below high water mark to or in such fill or appurtenant structures or to restrict the use of same.

Approved July 22, 1978

Chap. 557. AN ACT PERMITTING CERTAIN EMPLOYEES TO CONTINUE WORKING AND TO RETIRE AS VETERANS AFTER THEY HAVE REACHED THE MANDATORY RETIREMENT AGE.

Whereas, The deferred operation of this act would tend to defeat its purpose, which is, in part, to enable those persons classified as veterans and who were in the service of the commonwealth, or of any county, city, town or district, or any housing authority or any redevelopment authority prior to July first, nineteen hundred and thirty-nine, and for a total period of thirty years in the aggregate, to retire as veterans notwithstanding the fact that said persons have attained and passed the age of seventy, therefore it is declared to be an emergency law, necessary for the preservation of the public convenience and welfare.

Be it enacted, etc., as follows:

Chapter 32 of the General Laws is hereby amended by inserting after section 90F the following new section:-

Section 90G. Any member in service, classified in Group 1, who is a veteran, shall continue in service, at his option, notwithstanding the fact that he has attained age seventy; provided, however, that he is mentally and physically capable of performing the duties of his office or position. Such member shall annually,

RECEIVED
AUTHORITY

Appendix

Letter from Paul Barrett to Vivian Li, October 7, 1991

October 7, 1991

Ms. Vivian Li
The Boston Harbor Fishermen's Union
1100 Commercial Street
Boston, MA 02110

Dear Vivian:

I am writing to you regarding the letter I received from you dated September 24, 1991. I am sorry that I have not been able to respond to you more quickly. I am currently in the process of reviewing the information you provided and will get back to you as soon as possible. I am also in the process of reviewing the information you provided regarding the letter I received from you dated September 24, 1991.

As discussed with you, the history of the filling in the Navy Yard is long and complex. We have been working on this project for some time and have been able to identify the areas that need to be filled. We are currently in the process of reviewing the information you provided regarding the letter I received from you dated September 24, 1991.

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Very truly,
Paul Barrett
Paul Barrett, Executive Director
Boston Fishermen and Oystermen's Union

10/9/91

BOSTON
REDEVELOPMENT
AUTHORITY

Raymond L. Flynn
Treasurer

Stephen Coyle
Director

One City Hall Square
Boston, MA 02201
617-722-4300

October 7, 1991

Ms. Vivian Li
The Boston Harbor Associates
51 Sleeper Street
Boston, MA 02210

Dear Vivian:

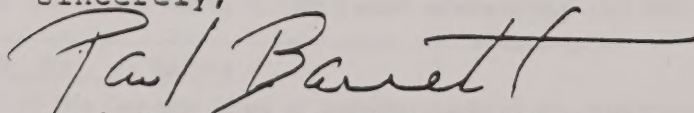
I am writing to more specifically define the Chapter 91 jurisdiction questions you have regarding the future development in the Charlestown Navy Yard. The enclosed map will show that for our planning purposes we will, at a minimum, assume that all projects waterside of the first public way will need to apply for and receive a Chapter 91 license.

As discussed with you, the history of the filling in the Navy Yard is long and complex. We feel that every project waterside of the first public way gives agencies like TBHA an important role in the review process of projects that directly impact the waterfront in Boston.

We look forward to working with you on these projects like the Yard's End Research Center, the hotel on Parcel 4, the New England Aquarium, the housing on Pier 5 and any other projects that will require Chapter 91 review in the future.

Thank you for your continued support we look forward to finalizing the Navy Yard redevelopment over the coming years with an active waterside as a major goal for us all.

Sincerely,



Paul Barrett, Assistant Director
Harbor Planning and Development

rs/94



Appendix

Letters of Comment on the Environmental Notification Form

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Commonwealth of Massachusetts
Executive Office of Environmental Affairs

Department of Environmental Protection

William F. Weld
Governor

Daniel S. Greenbaum
Commissioner

TO: Janet McCabe, Director, MEPA Unit

FROM: Christy Foote-Smith, Director, *Christy Foote Smith*
Division of Wetlands and Waterways

DATE: December 18, 1991

RE: Biomedical Research Center Buildings B and C,
Charlestown Navy Yard, Little Mystic Channel, Boston
EOEA #8883
Waterways Application No. W90-0686-N

The Department of Environmental Protection, Waterways Regulation Program has reviewed the referenced Environmental Notification Form (ENF) noticed in the Environmental Monitor on November 22, 1991. The proponent requests authorization to construct two buildings (B and C) with 812,000 square feet of floor space for biomedical research purposes, a nonwater-dependent use, on a 3.6 acre site consisting entirely of filled Commonwealth tidelands. Nonwater-dependent use projects of one or more acres of tidelands categorically require the preparation of an EIR pursuant to 301 CMR 11.25(4). The proponent is seeking a waiver from this requirement.

The quality of work set forth in the recently completed Master Plan has set the stage for the more detailed actions that are following, such as the review of this ENF. The Master Plan effectively achieved its goal of examining the overall issues related to redevelopment of the Navy Yard. A master plan is not intended to address site-specific issues related to individual projects, however. Accordingly, the Department's review on the Charlestown Navy Yard Master Plan focused on Yard-wide issues and, while identifying project-specific concerns, deferred requests for further analysis until individual projects come forward for review. This ENF for Buildings B and C appropriately identified the significant scoping issues; however further evaluation of site design and layout is needed. If the Secretary grants a waiver to the preparation of an EIR, it is recommended that the proponent be notified that the issues herein be examined and resolved through the Chapter 91 licensing process. The following information is necessary for Department review of the project.

- o Building Plans: Plans showing cross sectional views of Buildings B and C are needed by the Department for review of this project. The proponent is proposing maximum build-out to 155 feet for Building B and 110 feet for Building C and the design of the buildings is still in the conceptual stage. The cross sectional views should indicate the elevations currently proposed for each floor, the elevation to the top of the roof, the elevation to the top of the building utility structures located on the roof, and the uses proposed for each floor. All elevations should be expressed in terms of mean low water (MLW) and the National Geodetic Vertical Datum (NGVD).
- o Wind and Shadow Impact: The proponent's wind and shadow assessment for Buildings B and C contained in the Master Plan was valuable in providing baseline information for the analysis of wind and shadow impacts and associated mitigation measures. The Department recommends that the wind tunnel study required by the Secretary's Certificate on the Master Plan dated October 17, 1991, be conducted to provide a more definitive analysis. The wind tunnel study should encompass the full build-out proposed (the hotel, Aquarium, Building 114, and Biomedical Research Center Buildings A, B, and C) rather than just Buildings B and C due to the synergistic effect of the combined buildings on wind patterns.

The aforementioned wind and shadow assessment contained in the Master Plan indicated that the proposed Harborwalk along the Little Mystic Channel will be impacted by wind levels unacceptable for walking in all seasons except the summer. The effect of these winds is exacerbated by the proposed configuration of Buildings B and C. To mitigate this impact, the proponent's consultant recommended that the first two or three stories of the base of Buildings B and C be left open to a depth of 20 to 30 feet along the Harborwalk. The feasibility of employing this mitigation measure, as well as other measures to minimize the wind impact on the Harborwalk and plaza, should be analyzed.

The proponent's shadow assessment presented in the Master Plan indicated that the Harborwalk to the north of Buildings B and C would be in shadow most days of the year making the area dark and uninviting. The Department supports the proponent's intention to construct a "working port" stop on the Double Interpretive Loop which will make the area somewhat more inviting. Further development of the "working port" stop is needed. Additional measures should be

explored and incorporated into the project's final design to mitigate the shadow impact on the Harborwalk and adjacent plaza.

o Public Views: Through the master planning process for the Navy Yard, it was recognized by the Department that many cross site views of the Little Mystic Channel and Boston Inner Harbor exist at the project site. Construction of Buildings B and C will result in the loss of a water view from some public ways. The Department concurred with the loss of these expansive views in order to achieve a more prominent view down Second Avenue. The Second Avenue view is desirable since it will be along an existing pedestrian way and serve to invite the public to the waterfront. By placing service entrances to the east of Building C, the public views along First Avenue are maintained. Many of the existing views of the water from Third Avenue and Sixteenth Street may be diminished as a result of the project.

The proponent should provide a complete inventory under existing and proposed conditions of all sight lines that cross the parcel. The project should then be designed to enhance, to the fullest extent possible, the view of the harbor looking toward East Boston and Chelsea from Second and First Avenues. The proponent should analyze various design alternatives for Buildings B and C, using pedestrian level perspectives as well as narratives, which will promote such views. Alternatives considered in this analysis should include an open pedestrian way through the site along the Second Avenue corridor with no links between the two buildings.

o Facilities of Public Accommodation: The information within the ENF indicates that the ground floor of both proposed buildings is dedicated to automobile parking. These parking areas are intended to be used by the employees of the Biomedical Research Center and are, therefore, not classified by the Department to be facilities of public accommodation (FPA) in accordance with 310 CMR 9.02 and 9.53(2)(c). Use of the ground floor for a parking area may run counter to Requirement 4 of the Secretary's Municipal Harbor Plan (MHP) approval. Requirement 4, in part, dictates that ground floor space within 100 feet of a project shoreline be devoted to FPAs unless an alternative location would promote public use and enjoyment of the project site in a clearly superior manner or meets other exceptions. Additionally, Requirement 4 specifies that the percentage of interior space devoted to FPAs shall be at

least 40% of the aggregate footprint of buildings on parcels 4 (hotel), 6 (Building C), and 7 (Buildings A and B). Accordingly, the proponent should analyze how the conditions of Requirement 4 can be achieved in this project. The analysis should include plans depicting the floor plates of the ground floor of Buildings B and C which describe the specific location of all proposed uses. The analysis should also identify the percentage of FPA, within the 40% aggregate, that will be provided at Buildings B and C, as well as at the hotel and Building A.

The requirement to provide FPAs within 100 feet of the project shoreline provides an opportunity to attract and maintain substantial public activity on the site on a year round basis. In accordance with 310 CMR 9.53(2)(c), the Department will give special consideration to facilities that enhance the destination value of the waterfront by serving significant community needs, attract a broad range of people, or provide innovative amenities for public use. FPAs that may be successful at this location include a museum (either depicting Charlestown or Navy Yard history), interior ship watching room (to view industrial maritime operations in the adjacent Mystic River Designated Port Area), community center, neighborhood movie theater, and restaurants. Many FPAs locating at Buildings B and C are likely to benefit from visitors to the adjacent New England Aquarium. Accordingly, the proponent should analyze different types of FPAs for possible inclusion in Buildings B and C.

If FPAs are not proposed to be located within 100 feet of the project shoreline of Buildings B and C, the proponent should indicate the specific alternative locations and provide a narrative describing why these locations are clearly superior.

o Open Space:

Double Interpretive Loop, Harborwalk, Parks, and Plazas: The Department supports the proponent's plan, as presented at the MEPA scoping session, to construct the proposed open spaces located adjacent to Buildings B and C as part of this project. The proponent should identify the specific portions of the Double Interpretive Loop, Harborwalk, public parks and plazas to be constructed in conjunction with Buildings B and C. The party financially responsible for constructing and maintaining these public areas should also be identified and a timetable for their construction should

be prepared. For nonwater-dependent use projects, the Department's practice is to require completion of the proposed public amenities prior to the occupation of each completed building.

The proponent should also document, in accordance with Requirement 3 of the MHP approval, that the open space area within the entire Navy Yard will not fall below 50% of the total area within the Navy Yard, exclusive of the Historic Monument Area and other exceptions noted in the Secretary's Certificate on the Master Plan, upon completion of the project.

Use of Proposed Open Space In Yard's End: Building C is proposed to be located adjacent to the potential future site of the New England Aquarium. Due to the less public nature of the Biomedical Research Center, the public plazas proposed between these two facilities rely heavily upon the proposed relocation of the Aquarium to generate use by the general public.

The Department supports the proposed relocation of the Aquarium to the Navy Yard at Dry Dock No. 5 for a variety of reasons, not the least of which is that the dry dock will provide the Aquarium with the opportunity to construct a world class facility which will serve as a magnet to attract visitors to Yard's End. However, in the event the Aquarium does not relocate to this vicinity, the proponent will either need to amend the MHP or redesign Buildings B and C to increase the percentage of FPA's on the ground floor of the Biomedical Center and provide a higher quality of open space surrounding the site. Given the present uncertainty regarding the Aquarium relocation, the proponent should evaluate the latter option in order to expeditiously move this project forward. In terms of redesign of the open spaces surrounding Buildings B and C, the proponent should analyze alternative locations, landscape layouts, and designs that will invite greater use of the public plazas and Harborwalk, in the absence of the Aquarium. The analysis should focus on opportunities to place open space along the adjacent waterways and enlarge the Harborwalk to maximize visual enjoyment and to minimize wind and shadow impact.

o Historical Licensing Information: The Department encourages the proponent to contact the Department to compile the historical licensing information which was previously requested in our comments on the Master Plan. This

information was not necessary for inclusion within the Master Plan due to its site-specific nature. The information is required, however, for individual license applications and is customarily requested by the Department through the MEPA process. Specific information that should be provided includes historic high and low water shorelines, present shorelines, federal and state harbor lines, existing Special Acts of the Legislature relevant to the site, and existing c. 91 licenses.

o Site-Specific Licensing Information: The proponent should address how the standards of the Waterways regulations, as modified in part by the MHP approval, are met by Buildings B and C. For example, the proponent should identify how the standard at 310 CMR 9.53(2)(a), which requires that the project provide a facility which promotes water-based public activity, is met. This information is necessary for the Department to make its required finding under Chapter 91 as to whether the project serves a proper public purpose. In addition, the proponent is directed to the comments submitted by the Department's Northeast Regional Office under separate cover.

While either an EIR or the Chapter 91 application review can be used to obtain information on a project, an EIR clearly provides a better opportunity to review alternative designs and cumulative impacts at the earliest possible stage. Accordingly, the Department prefers that the referenced issues be resolved through the EIR process due to the conceptual level of project design. However, should the Secretary decide, based on the entire scope of comments received pursuant to the waiver request, not to require an EIR, the referenced issues will need to be resolved prior to issuance of any Chapter 91 authorizations within the Navy Yard. The Department remains fully supportive of the proponent's proposed goals in redeveloping Yard's End. I, and members of my staff will continue to work closely with the proponent to bring the licensing process to conclusion as expeditiously as possible.

If you have any questions regarding these comments, please contact Tom Maguire of my staff at 292-5695.

cc: DEP NE Region, J. Felix
CZM, J. Benoit
BRA, V. Karen
NPS
MHC
WRP App. File No. W90-0686-N



COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs

100 Cambridge Street

Boston, Massachusetts 02202

MEMORANDUM

To: Janet McCabe, Director, MEPA Unit
From: Jeffrey R. Benoit, Director, MCZM
Date: December 10, 1991
Re: EOEA # 8883 -- Charlestown Navy Yard Biomedical Research Center, Buildings B & C (Boston)

The Massachusetts Coastal Zone Management (MCZM) Office has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the Environmental Monitor dated November 22, 1991, and recommends the preparation of an Environmental Impact Report (EIR). The MEPA regulations categorically require an EIR for a nonwater-dependent project of this magnitude, and in our judgement there is no valid reason to make an exception in this case. To the contrary, it is both appropriate and important to ensure that further MEPA review occurs for this major component of redevelopment in the Navy Yard, despite the fact that an FSEIR has recently addressed a number of master planning issues affecting the site in question.

To begin with, it is clear that the FSEIR on the master plan did not supply affected regulatory agencies -- especially the Waterways Regulatory Program at DEP -- with the type and amount of project-specific impact information that the MEPA process is customarily relied upon to generate prior to the commencement of active licensing proceedings. This was highlighted in the FSEIR Certificate itself, where the Secretary clearly indicated that the master planning level of analysis had not been able (nor was it intended) to reach a number of questions involving compliance with key Chapter 91 requirements governing public use of exterior and interior spaces on the site. As stated on page 5 of our FSEIR comment letter dated October 16, 1991, MCZM has a particular concern that building-specific design alternatives should be seriously considered as a means of reducing adverse wind and shadow effects on the ground level environment surrounding the Biomedical Center, and that the mitigation process be guided by wind tunnel testing of the Yard's End massing configuration. Such analyses were adjudged to be too fine-grained to require at the master-planning level, but they are now essential for regulatory purposes on a case-by-case basis and therefore should be mandated in the Scope for Buildings B/C.

The unique MEPA function of exploring alternatives should also

be utilized in determining how much of the Biomed's ground floor must be devoted to facilities of public accommodation, in accordance with the waterways regulations as modified by the Secretary's Decision approving the Boston Harborpark Plan, dated May 22, 1991. Apart from the need to demonstrate compliance with the terms set forth in Requirement 4 of that Decision, there is also a need to address implications of the recent uncertainty expressed by the New England Aquarium as to whether it will go ahead with previously announced plans to develop its dramatic new facility on Parcel 5 at Yard's End (which presumably means that plans for a hotel on adjoining parcel 4 will also be put on hold). It should be noted that the Secretary's decision to authorize a waiver of most if not all requirements for interior public uses on parcels 6 and 7 was based in large part on the City's commitment to devote the remainder of Yard's End in its entirety to facilities of public accommodation, in the specific form of the Aquarium and associated hotel. In the unfortunate event this commitment cannot be fulfilled, it will be incumbent upon the City to pursue one of the following courses of action:

- a) amend the approved Harborpark Plan to include an alternative development scenario for parcels 4 and 5 that would be of comparable destination value to the public; or
- b) increase the amount of space devoted to facilities of public accommodation in the Biomedical Center, to the point where it would not be necessary to exercise the waiver authorized in the Secretary's May 22 Decision.

In our judgement it is appropriate for the recommended EIR to evaluate the latter option, as a means of allowing the Biomedical project to attain compliance with state requirements independent of any contingencies affecting implementation of the approved harbor plan on sites other than its own. This would not only allow the project to proceed more expeditiously through the licensing process in the short run, but would also result in much greater flexibility for the City in the programming of alternative uses on parcels 4 and 5 in the long run (because the need to offset the effect of less restrictive requirements on parcels 6/7 would be obviated).

Based on the foregoing observations, we do not support the proposition that previous MEPA submissions on the Navy Yard master plan have satisfied the requirement for an EIR on such a large scale and consequential project as the Biomedical Center. The City has acknowledged that the FSEIR Certificate included a number of requests for additional information and submissions regarding specific aspects of the project, and that full responses to these requests are now being prepared. That being the case, there should be little difficulty in presenting these responses in the form of an EIR, which is the only appropriate framework for dealing with major issues of mitigation and design alternatives left open at the broader level of planning.

JRB/DD

cc: C.Foote-Smith, DEP/Waterways
J.Simpson, DEP/Waterways

December 12, 1991

Susan Tierney, Secretary
Executive Office of
Environmental Affairs
100 Cambridge Street
Boston, MA 02202

RE: Boston/ENF
EOEA #8883

Dear Secretary Tierney:

The Northeast Regional Office of the Department of Environmental Protection has reviewed the ENF submitted by the Boston Redevelopment Authority to construct a biomedical research center at the Charlestown Navy Yard (EOEA #8883). A proposed, the project will involve the demolition of a six vacant buildings* that have existed on the site for a number of years. This activity must be done in compliance with both Solid Waste and Air Quality regulations. The appropriate Solid Waste provisions addressing this includes legislation (specifically Section 9 of Chapter 584 of the Acts of 1987), Section 54 of Chapter 40 of the M.G.L. that was amended with the following paragraph:

"Every city or town shall require, as a condition of issuing a building permit or license for the demolition, renovation, rehabilitation or other alteration of a building or structure, that the debris resulting from such demolition, renovation, rehabilitation or alteration be disposed of in a properly licensed solid waste disposal facility, as defined by Section one hundred and fifty A of Chapter one hundred and eleven. Any such permit or license shall indicate the location of the facility at which the debris is to be disposed. If for any reason, the debris will not be disposed of as indicated, the permittee or licensee shall notify the issuing authority as to the location where the debris will be disposed. The issuing authority shall amend the permit or license to so indicate".

It is also recommended that the Department of Environmental Protection and the local Board of Health in the community where the approved disposal facility is located be notified as to the specific facility which will accept the debris for disposal.

The demolition must also conform to Air Quality Regulations. The proponent should suggest measures to alleviate dust, noise, and odor nuisance conditions which may occur during and after

construction. Such measures must comply with DEP Air Quality Regulations 310 CMR 7.01, 7.09, and 7.10. In addition DEP Division of Air Quality Control must be notified, in writing, at least twenty days prior to commencement of any demolition. The removal of any asbestos from the building must adhere to the special safeguards defined in the Air Quality Regulations (310 CMR 7.15 (2)).

In addition, preconstruction approval is required from the DEP Division of Air Quality if the operation of the research facility includes air emissions greater than 1 TPY. Similarly, preinstallation approval from the Division of Air Quality is needed if the project proponent intends to install any machinery or equipment that emits air contaminants (i.e. boiler(s), fuel utilization units, processing equipment, etc.) that is sized above the thresholds specified in 310 CMR 7.02 or an emergency generator(s) greater than 3 MM BTU/hr. If subject, the plans and specifications must be approved by the Department in writing prior to the commencement of any installation or construction of such equipment.

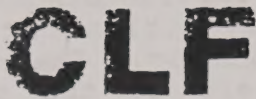
In addition to the above, the Northeast Regional Office refers the project proponent to the Chapter 91 concerns submitted by the DEP Division of Wetlands and Waterways under separate cover.

The DEP Northeast Regional Office appreciates the opportunity to comment on this proposed project. If you have any questions regarding these comments, please contact me at (617) 935-2160.

Sincerely,

John Felix,
MEPA Review Coordinator

cc: James Belsky, DEP/DAQC, NERO
Vic Karaian, DEP/DSW, NERO
John Simpson, DEP/DWW, Boston



Conservation Law Foundation

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MEPA

3 Joy Street
Boston, Massachusetts
02108-1497

(617) 742-2540
Fax: (617) 523-8019

December 9, 1991

Ms. Susan Tierney, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attn: MEPA Unit Project #8883

Dear Secretary,

The Conservation Law Foundation (CLF) appreciates the opportunity to provide these comments on the Charlestown Navy Yard (CNY) Redevelopment Plan Environmental Notification Form. This project comprise 812,000 square feet of Biomedical Research space on parcels 6 and 7 at Yard's End in the Charlestown Navy Yard, and is categorically required to undergo formal environmental review. The Boston Redevelopment Authority (BRA) is currently requesting that you waive the categorical Environmental Impact Report requirement. CLF opposes the granting of this waiver on the grounds that the BRA has not met the necessary waiver requirements under the MEPA Regulations. Also, a number of important environmental issues associated with the project still need to be addressed and the proper channel through which to do so is the preparation of an EIR.

Conservation Law Foundation of New England, Inc.

Waiver Request

The BRA has requested that you grant the waiver of an EIR pursuant to 301 CMR 11.18 of the MEPA Regulations. Under the regulations, a waiver may be granted if the Secretary finds that, "strict compliance with such requirement would result in undue hardship and would not serve to avoid or minimize hazard to the environment." 301 CMR 11.18 (1) Also under the MEPA Regulations, projects categorically requiring an EIR can only be granted a waiver if the proponent can prove that, "the impacts of the project are insignificant." 301 CMR 11.18 (2)(a) The BRA has based its waiver request on these regulations stating that, "the substantial delay associated with embarking on and completing another EIR process combined with the very substantial cost associated with such an effort together should be considered undue hardship, when, as in this case, all relevant issues have already been reviewed and addressed in previous MEPA filings." The BRA further justifies hardship based on the immediate need to capitalize on the marketing and building of biomedical research facilities to boost the sagging economy.

CLF contends that hardship has not been proven for several reasons. First, the MEPA Regulations state that, "hardship based on delay in compliance by the proponent will normally not be sufficient for invocation of this section."

301 CMR 11.18 (1) Thus, the discussion of economic benefits, while important, cannot legitimately be termed "hardship."

Second, even if economic arguments were relevant to the Secretary's decision, project construction is scheduled to begin in 1996-97 and will not help the economy today. Tenancy in the project is presently unknown. Speculative projects cannot be considered proper candidates for hardship under MEPA

Third, many relevant environmental issues have not been adequately addressed in previous filings. In the FSEIR Certificate for the Charlestown Navy Yard Redevelopment Plan, you spelled out a number of issues that still need review and asked that mitigation measures be developed by the proponent, "either as part of the Chapter 91 licensing process, through Environmental Notification Forms (ENF) for individual projects, or by other means, I will identify." The most appropriate forum for addressing outstanding issues is the EIR process.

In reviewing the documentation on the Charlestown Navy Yard Plan, it is apparent that a number of environmental issues involving buildings B and C should be the subject of an EIR. These issues deal primarily with transportation and building configuration.

Conservation Law Foundation of New England, Inc.

Transportation

Because traffic has a cumulative effect, each part of the Navy Yard buildout must be viewed in the context of the overall Navy Yard Plan. Any portion of the plan, if viewed individually, might appear to have a negligible impact; however, when seen as part of the whole, serious transportation capacity problems exist. More definite transportation mitigation plans must be developed for this project to succeed. Consider the following unresolved transportation issues.

First, in their letter dated October 9, 1991, the ad hoc Coalition points out a discrepancy in the calculation of the percentage of additional buildout now proposed as compared with the original 1978 plan. According to their calculations, the proposed plan is 31% larger than what has been previously approved, as compared with only an 8% increase asserted by the BRA. The dispute revolves around the question of how additional square footage was "approved" through notice of project changes over the years since 1973. Because the overall transportation analysis is based on these numbers, this discrepancy is of critical importance. A review of the numbers is mandatory to demonstrate whether the BRA projections, and thus the traffic generation assumptions, are correct.

Conservation Law Foundation of New England, Inc.

Second, in the DSEIR Certificate, you required that the FSEIR include unadjusted ITE rates for traffic and parking as well as the trip generation numbers used by the BRA. The difference between these two sets of numbers is quite striking. While the BRA asserts that the ITE rates are not applicable to urban areas such as the Navy Yard, their own numbers appear to be deflated and based on some spurious assumptions. For example, Tables 14 and 15 in the DSEIR show that 630 construction workers make 1,208 total daily trips, but use only 150 parking spaces. Also, the BRA's traffic and parking counts are based on only three days of traffic observation and one day of parking observation. The potential problems which might occur as a result of underestimating traffic totals cannot be ignored.

Third, the DSEIR Certificate specifies that a more complete local traffic mitigation plan be presented in the FSEIR. The BRA side stepped this critical issue by asserting that new development would not affect local traffic, thereby making mitigation unnecessary. In the FSEIR Certificate you state that you, "disagree with the proponent's contention in comment #27 that mitigation plans to discourage through traffic in dense areas of Charlestown are not warranted by the CNY development," and again require that the proponent develop mitigation plans. An EIR for buildings B and C would continue formal review of this issue

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rather than leaving it open to the loose consensual plan suggested in the FSEIR Certificate.

The BRA suggested at the scoping meeting that development of buildings B and C would actually improve traffic over the projected 1978 plan. This is at best a hypothetical argument because the plan, as it was conceived in 1978, will never be built. And, in any case, background traffic patterns and volumes are dramatically different today than they were in 1978.

Fourth, the effect of traffic on City Square has also not been thoroughly resolved. The DSEIR scenario (p. 55) projects that, "[a]pproximately thirty percent (30%) of Navy Yard trips not related to the Aquarium and National Park would travel through Charlestown, with the remaining 70% passing through City Square." The DSEIR Certificate specifies the need for additional mitigation plans beyond the construction of a right turn lane on Chelsea Street.

The Certificate also asks for an explanation of the discrepancy between the 90% of traffic assigned by the Central Artery engineers as coming into City Square from the south and the 44% projected in the Navy Yard Plan. In the FSEIR, the proponent avoided both issues by stating that: (1) further analysis of City Square improvements is premature due to the uncertainty over the "Scheme Z" interchange, and (2) "there is no direct comparison possible

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between the two numbers [90% and 44%]. . .since they are describing different sets of data." (p. 57) While the difficulty in comparing the data may be real, it does not negate the need for mitigation plans for an intersection with projected LOS in 1998 of F if mitigation is not instituted and E if the Chelsea Street right turn lane is added. (Tables 2 and 4, p. 48-49)

Fifth, the issue of mass transit must be revisited to ensure proper mitigation. Although the DSEIR Certificate was quite specific in requiring mitigation measures, they were not forthcoming. First, the FSEIR states that the responsibility for development of mass transit rests with the MBTA, not with the BRA. While this is true, it does not address the problem.

Like the fabled emperor with no clothes, the documents to date fail to address the reality that there is no mass transit connection to the Charlestown Navy Yard. Yet the DSEIR predicts 15,000 transit trips will be made to this area every day in the year 2005. The FSEIR does discuss the Circumferential Transit Line, which might someday access this area, but only to say that it is no longer being planned. The FSEIR also discusses the network of shuttle busses which now provide a link between existing mass transit stops and the Navy Yard. However, there is no mention of whether the private shuttles currently provided

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by employers in the Navy Yard will consent to carry passengers other than their own employees. Nor does it consider the impacts of a monumental increase in shuttle bus trips. Perhaps the assumption being made here is that buildings B and C will provide their own shuttle system. Clearly, this needs to be spelled out specifically, not left to future conditions and chance.

The FSEIR Certificate recognizes the inadequacy of the mitigation strategy planned by the proponent, and suggests that further mitigation be worked out with the MBTA and neighborhood groups. CLF agrees with the need to continue further mitigation review; however the proper forum for doing so is the EIR. If these issues had been thoroughly resolved in the Charlestown Navy Yard Redevelopment FSEIR as they should have been, CLF would support the request for an EIR waiver now. Unfortunately, the problems are still outstanding. Therefore, the MEPA process must continue. It may require further time and expense to do so, but in the long run it will be less costly than building a white elephant at Yard's End which is inaccessible, or which imposes undue impacts on local residents.

Building Configuration

Although alterations in the Chapter 91 Regulations made specifically for the Charlestown Navy Yard through the City

Conservation Law Foundation of New England, Inc.

of Boston Municipal Harbor Plan have been approved by the Secretary, the controversy surrounding these changes has not gone away. The changes that are the most alarming are those dealing with open space and building heights.

Under the Chapter 91 Regulations any nonwater dependent development on Commonwealth tidelands must leave approximately 50% open space per site. For the Charlestown Navy Yard this requirement was changed through the Municipal Harbor Plan to calculate the 50% for the entire area rather than for each building parcel. Additionally, the National Historic Park lands have been included in the 50% calculation even though they are not under the jurisdiction of the proponent or open for development.

Chapter 91 specifies a building height for nonwater dependent uses in tidelands of 55 feet. The Municipal Harbor Plan allows this to rise to 155 feet (building B) - clearly a dramatic difference. To argue that the new height is acceptable because pre-existing buildings in the Navy Yard are of comparable height (building 199 - 110 ft high), that the already approved building A is as high (140 ft.), or that the buildings will not appear as large as they are from the ground is to miss the point of the Chapter 91 Regulations.

Chapter 91 states that, "[n]o structures or fill for nonwater dependent uses of tidelands may be licensed unless

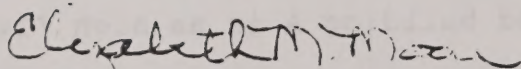
Conservation Law Foundation of New England, Inc.

a written determination by the department is made following a public hearing that said structures or fill shall serve a proper public purpose and that said purpose shall provide a greater public benefit than public detriment to the rights of the public in said lands. . ." The proponent has failed to show how buildings B and C meet these requirements. The massing of these buildings impedes rather than improves public access to these Commonwealth tidelands making them more to the public detriment than to the public benefit.

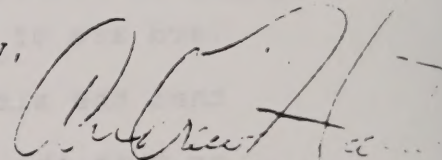
Conclusion

Based on the above arguments CLF strongly recommends that the request for a waiver of an EIR for buildings B and C in the Charlestown Navy Yard not be granted. The BRA has admitted that many of the identified impacts remain to be addressed. Because the potential magnitude of these impacts constitute substantial local disruption, the EIR process is the only appropriate forum for addressing them.

Sincerely,



Elizabeth M. Moore
Transportation Intern



Andrew W. Hamilton
Staff Scientist

THE ad hoc COALITION

RECEIVED

DEC 1 1991

MEPA

12 December 1991

Secretary Susan F. Tierney
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attention: William Gage
MEPA Unit

RE: #8883, Charlestown Biomedical Research Buildings B & C

Dear Secretary Tierney:

The ad hoc Coalition strongly urges you to deny the Boston Redevelopment Authority's (BRA) request for a waiver of an Environmental Impact Report (EIR) for Buildings 2 and 3 of the Charlestown Navy Yard Biomedical Research Complex.

We fail to see how the waiver of an EIR for these projects, which according to the BRA will not start until 1996 or 1997 at the earliest, can in any way benefit the public, the projects or the environment. On the contrary, the granting of a waiver five years in advance would only add to the confusion that has characterized the Navy Yard planning to date. An already complicated situation would be further complicated with no benefit to the public's interest in this Commonwealth tideland site.

THE BRA'S REQUEST

The BRA asks for a waiver in two ways: either under the conditions set forth in 301 CMR 11.18; or, as a discretionary action based on the fact of their having completed the Master Plan. The BRA does not meet the conditions of the first; and the second is unconvincing, given the outstanding Master Plan issues and the pattern of disinterest in environmental consequences that the BRA has shown in filings over the past year. Specifically,

1. These projects are categorically included for a number of reasons. According to 301 CMR 11.18:2, it is presumed that categorical inclusions will have a significant impact on the environment. It is presumed that an EIR will benefit the project and the environment. A waiver must be based on the rebuttal of these presumptions. The BRA's rebuttal, prefaced by a claim of hardship through delay and financial hardship, which for projects five years down the road and of this nature, is ludicrous.

The BRA claims that:

- a. the impacts are insignificant; and
- c. ample and unconstrained infrastructure exists to support the project

Does the BRA mean to suggest that an ample and unconstrained road system exists into and within Charlestown? Even if Navy Yard development did not occur, City Square will be operating at a level of service F. Does the BRA mean to suggest that ample and unconstrained roads and access exist within the Yard? The proposed Gate 6 was planned to accommodate the Biomedicals and the Aquarium, but it does not yet exist. Ample public transit? The October 17, 1991 Certificate speaks to that: "... (It is) inadequate for this scale of project." Ample parking? It does not now exist. What is planned is inadequate--and that assumes that the projects go forward as Research Facilities. If, however, they go forward as zoned, that is, an approximate 50/50 split between Research and General Office Uses, what was merely inadequate becomes absurd.

The BRA's claim that the impacts of the project are insignificant is unfounded. These buildings are massive. The wind and shadow impacts along the Little Mystic are inhospitable in the extreme--and for nine months of the year. There is no relief and little pleasure to be found waterside of these behemoths. And yet the Draft Master Plan, the Final Master Plan, and now the Environmental Notification Form (ENF) provide no concrete mitigation plan.

Also, the projects' use has environmental consequences. No one seems to know much about biomedical research, and certainly no one knows anything specific about the research in Buildings 2 & 3, because there are no users at this time. But we do know, according to the ENF, that there will be hazardous and infectious waste. It seems reasonable to want to know more about these facilities and their range of activities as well as the possibility of community representation on their Safety Committees-- and not have these opportunities foreclosed 5 years before the fact.

2. The argument for a waiver based on the fact of having completed the Master Plan is unconvincing.

First, there are significant outstanding issues. These include transportation mitigation, public access mitigation and a decent mass transit plan. These should be resolved before any specific projects are brought forward for more detailed review.

Every MEPA filing over the past year, starting with the NPC request to exempt the entire Navy Yard from all environmental review, to the DSEIR request that there be no further

environmental review, to the FSEIR request that any outstanding environmental issues be deferred to future filings, fits into a pattern that strongly suggests a lack of interest on the BRA's part in the environmental consequences of their projects.

What we have to date are:

- * The Phase I projects grandfathered--no EIR
- * A Master Plan certified with major unresolved issues
- * The Request for waiver of an EIR for the bulk of Phase II projects five years in advance with no public benefit

For these reasons and those presented by commentators at the scoping session on December 6, 1991, we protest the granting of this waiver. This is a high-profile project and one that is highly politicized. We understand these pressures, but based on the merits of the case, we urge you to require that the processes go forward in an orderly and logical way.

THE AD HOC COALITION'S REQUEST

Specifically, we would like to see:

- * The outstanding Master Plan issues resolved. In this regard, the transportation mitigation and mass transit advisory described in the October 17, 1991 Certificate should be amended to a requirement. Transportation mitigation and a concrete mass transit plan should be required, not merely suggested, and be made a condition for the commencement of the Phase II projects.

We draw your attention to our letters and appendices of July 25, 1991 and October 9, 1991, which among other things point out the discrepancies between our traffic analysis and that of the BRA. For this reason we have repeatedly asked for a thorough traffic and parking analysis by an independent recognized expert. We do so again, as we feel that a project of this size warrants such attention, and this review would facilitate the future planning and mitigation efforts.

- * The open space and public accommodation facilities associated with Buildings 2 and 3 should be identified by location and square footage. The Second Avenue view corridor needs to be resolved. The ENF, which the Secretary has described as a vehicle to build on the information in the Draft and Final Master Plans, provides no additional information nor mitigation plans. In essence, this ENF is the BRA quoting itself. Because of this fact an EIR is necessary to provide information and mitigation plans, all of which relate to the public's use, enjoyment and rights on this public land.

- * In addition, an EIR would review alternative proposals. Citing alternatives, as the BRA does, from the 14-year old 1977-78 Master Plan, when we have just labored through a revised Master Planning

process, is disengenuous and unacceptable. Given the fact of the uncertainty surrounding the magnet project, the Aquarium, and the jeopardy to public interest that would happen should it not come, consideration of current alternatives to the Yard's End projects is imperative. The public's interest in the use and enjoyment of Commonwealth tidelands should not be foreclosed five years before the fact.

We see no benefit to the public, the projects, or the environment in the granting of this waiver. On the contrary, it would be detrimental to the public's interest. We urge you to require that an EIR be filed so that the public's considerable right's in this waterfront site receive due process.

Respectfully,

Phoebe Blake

Phoebe Blake
20 Monument Square
Charlestown, MA 02129

for The ad hoc Coalition



City of Boston
The Environment
Department

Raymond L. Flynn
Mayor

Lorraine M. Downey
Director

Boston City Hall Room 805
Boston, Massachusetts 02201
617-25-4416 or 25-3850

Secretary Susan F. Tierney
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202

Attn: William Gage, MEPA Unit

RE: EOE #8883 - Environmental Notification Form (ENF) -
Charlestown Navy Yard Biomedical Research Center
Buildings B & C

Dear Secretary Tierney:

The City of Boston Environment Department has reviewed the proposed development project cited above and hereby submits the following comments in response hereto:

Information presented within the ENF indicates project compliance with the environmental impact and mitigation study requirements of the MEPA process.

The ENF has served the purpose of outlining the extensive impact studies conducted to date as well as those studies which are required prior to project implementation as in accordance with the Secretary's Charlestown Navy Yard FSEIR Certificate and Decision on the Boston Municipal Harbor Plan. The requirements and commitments mandated by the Secretary's prior decisions provide a sufficiently rigid framework for continued review and dialogue between the project proponent and all relevant community groups and environmental agencies.

I have confidence in the regulatory framework as outlined below:

Historic Issues consideration within Section 106 of the National Historic Preservation Act of 1966 with the involvement of the Boston Landmarks Commission, Massachusetts Historical Commission, the National Park Service, and the President's Advisory Council on Historic Preservation.

Waterways Issues to be reviewed through the Chapter 91 licensing and within the parameters of the approved Harbor Plan, including the Pier Management Plan drafted with the assistance of the Environment Department, Harborpark Advisory Committee, DEP, MCZM, Boston Shipping Association, The Boston Harbor Association and the MEPA Unit.

Wind & Shadow Issues to be finalized in the Chapter 91 licensing.

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DEC 12 1991

MEPA



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DEC 1 1991

MEPA

December 9, 1991

Secretary Susan Tierney
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202

Attn: William Gage, MEPA Unit

Re: Biomedical Research Center Buildings B & C, Parcels 6 & 7, Charlestown
Navy Yard, Boston, MA EOE No. 8883

Dear Secretary Tierney:

The staff of the Massachusetts Historical Commission has reviewed the Environmental Notification Form for the proposed project referenced above. The project location is within the former Boston Naval Shipyard, which is listed on the State and National Registers of Historic Places.

For the past two years, the MHC has been reviewing the proposed redevelopment of Parcels 6 and 7 with the Advisory Council on Historic Preservation, the National Park Service, the Boston Landmarks Commission and the Boston Redevelopment Authority. The review of these two parcels has been a component of MHC's review of the amendments to the Design Guidelines for the Navy Yard, in compliance with Section 106 of the National Historic Preservation Act.

The current conceptual proposal for Buildings B & C of the Biomedical Research Center is consistent with the revised Design Guidelines for the New Development Area. The MHC looks forward to ongoing review of the proposed project plans as they are developed, as outlined in the Memorandum of Agreement of 1978 between the Advisory Council on Historic Preservation, the General Services Administration and the MHC, and the Amendment to the Design Guidelines for the New Development Area of 1991.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act, as amended (36 CFR 800), M.G.L. Ch. 9, ss. 26-27C, as amended (950 CMR 71) and MEPA.

Massachusetts Historical Commission, Judith B. McDonough, *Executive Director, State Historic Preservation Commission*
80 Boulston Street, Boston, Massachusetts 02116 (617) 727-8470

Office of the Secretary of State, Michael J. Connolly, *Secretary*

If you have any questions, please contact Maureen A. Cavanaugh of this office.

Sincerely,

Judith B. McDonough

Judith B. McDonough

Executive Director

State Historic Preservation Officer

cc: Advisory Council on Historic Preservation
National Park Service/Mid-Atlantic Regional Office
National Park Service/Boston National Historic Park
Massachusetts Water Resources Authority
Department of Environmental Protection
Boston Landmarks Commission
Boston Preservation Alliance
Boston Redevelopment Authority

COMMENTS: (1) YES

DATE: 12-1-75

Richard E. Taylor
RICHARD E. TAYLOR
SECRETARY

Traffic & Public Transit Mitigation Plans to be developed with the Charlestown Neighborhood Council, Boston Transportation Department, MBTA, Charlestown North Area Task Force, the Ad Hoc Coalition and any other interested parties.

Open Space and Facilities of Public Accomodation commitments to be honored concerning the Yard's End Parcels 4,5,6, & 7 and the entire Charlestown Navy Yard in accordance with the requirements of the Boston Municipal Harbor Plan.

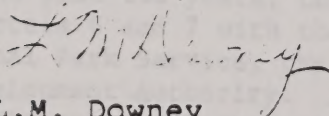
Wetlands Protection to be reviewed by the Boston Conservation Commission.

Water and Sewers as regulated by the Massachusetts Water Resources Authority and Boston Water & Sewer Commission.

I do not perceive any material reasons for a submission of an environmental impact report for this project. A further EIR process will not materially strengthen environmental protection. Combined, the existing and planned studies comprehensively detail the project impacts. In addition, the process for study completion furnishes continued opportunities for input from all interested parties thereby protecting community interests.

I thank you for this opportunity to comment and look forward to continued involvement as mandated by the review framework established by the SFEIR Certificate and the Harbor Plan Decision.

Sincerely,



L.M. Downey
Director



The Commonwealth of Massachusetts

Executive Office of Transportation & Construction

Office of the Secretary

10 Park Plaza, Room 3510

Boston, MA 02116-3969

Telephone 978-7000

TDD (617) 973-7306

Telefax (617) 523-6454

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DEC 1 1991

MEPA

William F. Weld
Governor

Angelo Paul Cellucci
Lieutenant Governor

Richard L. Taylor
Secretary

EOTC #:91-0737

(x) ENF
() DEIR
() FEIR
() PROJ. CHANGE

#8883

#

() SUPP. DEIR #
() SUPP. FEIR #
() TRAF. STUDY #
() OTHER #

DATE RECEIVED: 11-26-91

COMMENTS DUE: 12-12-91

TOWN/CITY CHARLESTOWN, MASSACHUSETTS

PROJECT PROPONENT. Boston Redevelopment Authority
1 City Hall Square
Boston, MA

PROJECT DESCRIPTION: BIOMEDICAL RESEARCH CENTER BUILDINGS B & C, PARCELS 6 & 7, CHARLESTOWN NAVY YARD, CHARLESTOWN, MA. The proposed project consists of the development of 1,100,000 s.f. of space for biomedical research and laboratories.

COMMENTS: (x) YES

() NO

DATE: 12-1-91

RICHARD L. TAYLOR,
SECRETARY



The Commonwealth of Massachusetts

Executive Office of Transportation & Construction

Office of the Secretary

William F. Weld

Governor

Luigi Paul Bellicucci

Lieutenant Governor

Richard L. Taylor

Secretary

10 Park Plaza, Room 3510

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**EOTC COMMENTS ON THE ENF FOR
BIOMEDICAL RESEARCH CENTER BUILDINGS
CHARLESTOWN, MA
EOEA #8883**

EOTC has reviewed the ENF for the Biomedical Research Center Buildings B & C in the Charlestown Navy Yard. The project consists of the construction of 812,000 square feet of biomedical research and laboratory space in the Yard's End Section of the Navy Yard. This project is an important part of the overall Navy Yard redevelopment plan, which involves a total build-out of 4,956,900 square feet. As required by MEPA, the proponent is responsible for preparing separate ENFs for this Research Center, as well as for the New England Aquarium relocation.

This project is categorically included for the preparation of an EIR. However, the proponent is requesting a waiver from this requirement on the basis of the extent of analysis and review contained in previous MEPA filings. As part of the conditions set forth in the MEPA FSEIR Certificate, the proponent will be preparing additional analysis to address the remaining questions raised in that Certificate.

EOTC feels that, with respect to traffic and transportation, based upon the level of analysis contained in the Navy Yard Master Plan documents and in light of the provisions set forth in the MEPA Certificate, an EIR is not necessary. The proponent will be preparing both a traffic management plan and a transit management plan to address the issues raised in the MEPA FSEIR Certificate.

EOTC has recently learned that the New England Aquarium no longer intends to relocate the Aquarium from Central Wharf to the Navy Yard. The FSEIR indicated that the proponent would

locate a multi-use pier at Pier 11 for larger, naval-type vessels, while a public water shuttle terminal would be provided at Pier 10. EOTC assumes that this public water shuttle terminal would still be provided at Pier 10 (despite the Aquarium's change in plans) due to Pier 10's central location and proximity to the proposed Hotel. This should be clarified in the transit mitigation plan.

If the Aquarium is not to be relocated, and the timing and implementation of proposed traffic and transit mitigation measures are to be modified, this should be discussed in the traffic/transit mitigation plans required by MEPA.

12-4-91

mtv

**Boston Water and
Sewer Commission**

425 Summer Street
Boston, MA 02210-1700
617-330-9400
Fax 617-330-5167

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DEC 2 1991

MEPA



November 26, 1991

Secretary Susan F. Tierney
Executive Office of Environmental Affairs
100 Cambridge Street, 14th Floor
Boston, MA 02108

Attention: MEPA Unit

Re: Charlestown Navy Yard
Biomedical Research Center Buildings B and C - ENF
EOEA #8883

Dear Secretary Tierney:

The Boston Water and Sewer Commission has reviewed the Environmental Notification Form (ENF) for the proposed Biomedical Research Center Buildings B and C project in the Charlestown Navy Yard. This project consists of the construction of Buildings B and C of the Biomedical Research Center on Parcels 6 and 7 in the Yard's End area of the Charlestown Navy Yard. A total of 812,000 square feet of gross floor area of biomedical research, laboratory space and accessory uses is proposed, together with 755 parking spaces in three above-grade garage levels.

A Draft Supplemental Environmental Impact Report (DSEIR) for the development of the Charlestown Navy Yard was submitted to the MEPA Unit by the project proponent in June of 1991. The Final Supplemental Environmental Impact Report (FSEIR) for the Navy Yard was submitted in September, and approved by the MEPA Unit in October. The project proponent has requested that the MEPA Unit waive its requirement for an Environmental Impact Report for the Biomedical Research Center on the grounds that all significant environmental impacts of this project have already been addressed within the context of the Draft and Final Supplemental Environmental Impact Reports for the Charlestown Navy Yard development.

The Commission has the following comments concerning the proposed project:

General:

1. If new water or sewer service connections are required for the project the proponent will be required to submit to the Commission, a General Service Application and a site plan.
2. Connections to the water and sewer systems must be constructed in conformance with the Commission's Sewer Use, Water Distribution System Regulations and Site Plan Requirements.

Sanitary Sewers and Storm Drains:

1. The proponent should note Article IV of the Commission's Sewer Use Regulations as it pertains to medical research facilities.
2. Wherever possible, stormwater drainage from the Navy Yard should be directed to the harbor and not to the drainage system which serves the site.
3. Oil and sand separators will be required in the garage in accordance with the MWRA's and the Commission's Sewer Use Regulations. The design and locations of catch basins and oil and sand separators are subject to review and approval by the Commission.
4. If site dewatering is to be discharged to the Commission's system, a permit must be obtained from the Commission.
5. The project site contains, and previously contained, both aboveground and subsurface fuel and oil storage tanks. Former uses of the existing site buildings included oil and acid storage, incineration, battery charging, and abrasive blasting. The proponent is reminded that at no time should contaminated water or sediments be allowed to enter the Commission's sanitary or storm drain system.

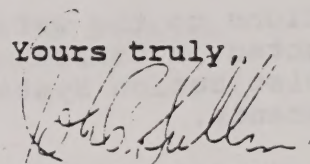
Secretary Susan Tierney
November 26, 1991
Page 3

Water:

1. In addition to the water conservation measures required by the Plumbing Code, the proponent should consider implementing other water saving measures where appropriate.

Thank you for the opportunity to comment on the project.

Yours truly,


John P. Sullivan, Jr., P.E.
Chief Engineer

cc: P. Barrett, BRA
L. Blank, BWSC
S. Coyle, BRA
E. Favret, BWSC
P.J. Foley, BWSC
R. Kobayashi, MWRA
R. Mertens, BRA
S. Shea, BWSC

ak



Boston Landmarks Commission

City of Boston
The Environment
Department

Boston City Hall/Room 805
Boston, Massachusetts 02201
617-725-3850

December 12, 1991

Secretary Susan Tierney
Executive Office of Environmental Affairs
100 Cambridge Street 20th Floor
Boston, MA 02202

Attn: W. Cage
Re: EOE A #8683, Biomedical Research Center Buildings 3 & 4,
Parcels 6 & 7, Charlestown Navy Yard.

Dear Secretary Tierney:

The staff of the Boston Landmarks Commission has reviewed the ENF submitted by the Boston Redevelopment Authority for the development of Parcels 6 & 7 of the Charlestown Navy Yard and hereby submits the following comments in response.

For the past two years, the staff of the BLC along with the Massachusetts Historical Commission (MHC), the President's Advisory Council on Historic Preservation (ACHP), the National Park Service (NPS) and the Boston Redevelopment Authority (BRA) have been involved in a review of the project pursuant to Section 106 of the National Historic Preservation Act of 1966. The ENF reflects the efforts of the Section 106 process to date and is consistent with the revised Design Guidelines for the New Development Area.

As discussed in our FSEIR comment letter dated October 10, 1991 regarding the Navy Yard, the BLC is looking forward to continuing review of the parcel plans as they are developed.

Thank you for the opportunity to comment.

Sincerely,

Michael A. Cannizzo, AIA
Staff Architect
Boston Landmarks Commission

cc: Lorraine M. Downey, Boston Environment Department
Massachusetts Historical Commission
Boston Preservation Alliance
National Park Service Mid-Atlantic Regional Office

mac:1482E25

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DEC 12 1991
MEPA



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

RECEIVED

DEC 1

MEPA

Susan Tierney, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

December 10, 1991

Attention: MEPA Unit

RE: EOEA # 8883 - Biomedical Research Ctr., Buildings B & C/Boston

Dear Secretary Tierney:

Concerning the above-referenced Environmental Notification Form (ENF), we submit the following comments:

---If anything other than sanitary sewage is discharged into the sewerage system, the proponent must apply for an MWRA Sewer User Discharge Permit.

---As strict adherence to the Massachusetts 248 CMR 2:00 Uniform State Plumbing Code is a requirement and not a mitigation measure, the MWRA suggests the following additional measures in order to minimize water use and wastewater flow.

Specialized processes and equipment

- *Reduce water consumption in dark rooms through the use of temperature control valves. Install valves on X-ray developing equipment to maintain the bath temperature and eliminate the constant flow of water.
- *Use low temperature VVC machines-a newly available technology which reduces water consumption by reducing wastewater at the end of the film development process.
- *Install restrictors on vacuum and air pumps to reduce the flow rate from 5 gallons per minute (gpm) to 2.5 gpm.
- *Replace gland seals on pumps with mechanical seals to eliminate dripping.
- *Reclaim non-contaminated water, such as that used to operate laser beams. Use this water to produce distilled or ultra pure water, instead of allowing it to drain to the sewer.
- *Reduce the ratio of reject water to produce flow by 50% by changing filters twice as often.
- *Reclaim reject water and other non-contaminated water, and use it for condensate cooling, sterilizer cooling, animal quarters washing, irrigation, etc.



Susan Tierney, Secretary
Page Two

EOEA No. 8883
December 10, 1991

Heating and Cooling Systems:

- *Use closed-loop cooling systems with cooling towers.
- *Consider ozone or glycol cooling towers treatment instead of traditional chemical methods.
- *Do NOT use isolated cooling units which require single pass, non-contact cooling water. (360 CMR 10.000: MWRA Sewer Use Regulations prohibit discharge of non-contact cooling water to the sewerage system).
- *Use air cooled rather than water cooled technologies.
- *Capture and reuse steam condensate as boiler or cooling tower make-up.

Sanitary Use:

- *Install .5 gpm faucet aerators.
- *Install 2.5 gpm showerheads.
- *Install automatic sensor operated faucets in public restrooms.
- *If automatic sensors are used in public toilets, adjust so that the beam is triggered by movement over the commode and not within the stall to avoid unnecessary flushing.
- *Install code-conforming 1.6 gpf toilets or retrofit existing toilets with toilet dams or other water-saving devices.

Process Use:

- *Minimize water consumption in facility processes by employing current reuse and recycling technologies wherever possible.
- *Determine if less water can be used for a particular process.
- *Use temperature and flow rate control valves to minimize water use.
- *Install pressure reducing valves where water pressure is higher than 50-60 pounds per square inch.



Susan Tierney, Secretary
Page Three

EOEA #8883
December 10, 1991

Landscaping and other outdoor water use:

- *Minimize turf areas. Use groundcovers and drought tolerant plants to minimize irrigation needs.
- *Install timers, tensiometers (soil moisture indicators), and rainfall sensors, if a sprinkler system is used.
- *If permitted, use on-site detention ponds for irrigation and cooling tower make-up.

We appreciate the opportunity to comment. Should you have any questions, please do not hesitate to call me at 242-0230 ext. 4804.

Very truly yours,

Richard M. Kobayashi

Richard Kobayashi
Planning Program
Wastewater Engineering/Construction

cc: Libby Blank, Boston Water & Sewer Commission

Boston

Raymond L. Flynn, Mayor

December 9, 1991

RECEIVED

DEC 1 1991

MEPA

Susan Tierney, Secretary
Executive Office of Environmental Affairs
100 Cambridge St.
Boston, MA 02210

ATTN: MEPA Unit

RE: Environmental Notification Form: Biomedical Research Center
Buildings B and C, Charlestown Navy Yard

Dear Secretary Tierney:

I am in receipt of the above ENF, and would like to submit the following comments.

As noted in the letter to you from Stephen Coyle which accompanies the ENF, the Boston Redevelopment Authority prepared and submitted in June and September, respectively, a Draft and a Final Supplemental Environmental Impact Report for the Charlestown Navy Yard. As we stated at the time, and as you indicated in your approval of the FSEIR, this document provides a thorough overview of the transportation issues connected with the total long-term buildout of the Navy Yard.

The buildings described in the ENF now before you represent a subset of that total long-term buildout. Accordingly, the BRA has asked that they be waived from the requirement of an EIR. I concur, with the understanding stated in our comment on the DSEIR, that these projects will be subject to the complete array of City reviews described in Article 31 of the Boston Zoning Code. As such, they will have Access Plans prepared and submitted to the BTB, which will detail the site-specific impacts of development, such as those related to pedestrian and loading activity.

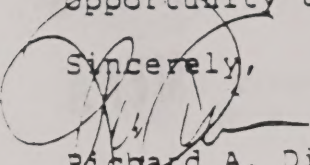
Pursuant to these Access Plans, Access Plan Agreements will be executed between the BTB, on behalf of the City of Boston, and the BRA and the project developers. The Access Plan Agreements will describe measures to be taken which will minimize traffic impacts, maximize the use and availability of transit services, and bolster the development of an area-wide Transportation Management Organization.

Richard A. Dimino, Commissioner, Transportation Department
City of Boston/City Hall Square/Boston, MA 02201



We are confident that these projects will have a net beneficial effect on Charlestown and the City of Boston, and look forward to working with the BRA and the project developers to improve transportation conditions in the Navy Yard. Thank you for the opportunity to comment on this ENF.

Sincerely,


Richard A. Dimino
Commissioner

1355T



December 12, 1991

Susan Tierney, Secretary
Executive Office of
Environmental Affairs
100 Cambridge Street
Boston, MA 02202

RE: Boston/ENF
EOEA #8883

Dear Secretary Tierney:

The Northeast Regional Office of the Department of Environmental Protection has reviewed the ENF submitted by the Boston Redevelopment Authority to construct a biomedical research center at the Charlestown Navy Yard (EOEA #8883). A proposed, the project will involve the demolition of a six vacant buildings* that have existed on the site for a number of years. This activity must be done in compliance with both Solid Waste and Air Quality regulations. The appropriate Solid Waste provisions addressing this includes legislation (specifically Section 9 of Chapter 584 of the Acts of 1987), Section 54 of Chapter 40 of the M.G.L. that was amended with the following paragraph:

"Every city or town shall require, as a condition of issuing a building permit or license for the demolition, renovation, rehabilitation or other alteration of a building or structure, that the debris resulting from such demolition, renovation, rehabilitation or alteration be disposed of in a properly licensed solid waste disposal facility, as defined by Section one hundred and fifty A of Chapter one hundred and eleven. Any such permit or license shall indicate the location of the facility at which the debris is to be disposed. If for any reason, the debris will not be disposed of as indicated, the permittee or licensee shall notify the issuing authority as to the location where the debris will be disposed. The issuing authority shall amend the permit or license to so indicate".

It is also recommended that the Department of Environmental Protection and the local Board of Health in the community where the approved disposal facility is located be notified as to the specific facility which will accept the debris for disposal.

The demolition must also conform to Air Quality Regulations. The proponent should suggest measures to alleviate dust, noise, and odor nuisance conditions which may occur during and after

construction. Such measures must comply with DEP Air Quality Regulations 310 CMR 7.01, 7.09, and 7.10. In addition DEP Division of Air Quality Control must be notified, in writing, at least twenty days prior to commencement of any demolition. The removal of any asbestos from the building must adhere to the special safeguards defined in the Air Quality Regulations (310 CMR 7.15 (2)).

In addition, preconstruction approval is required from the DEP Division of Air Quality if the operation of the research facility includes air emissions greater than 1 TPY. Similarly, preinstallation approval from the Division of Air Quality is needed if the project proponent intends to install any machinery or equipment that emits air contaminants (i.e. boiler(s), fuel utilization units, processing equipment, etc.) that is sized above the thresholds specified in 310 CMR 7.02 or an emergency generator(s) greater than 3 MM BTU/hr. If subject, the plans and specifications must be approved by the Department in writing prior to the commencement of any installation or construction of such equipment.

In addition to the above, the Northeast Regional Office refers the project proponent to the Chapter 91 concerns submitted by the DEP Division of Wetlands and Waterways under separate cover.

The DEP Northeast Regional Office appreciates the opportunity to comment on this proposed project. If you have any questions regarding these comments, please contact me at (617) 935-2160.

Sincerely,

John Felix,
MEPA Review Coordinator

cc: James Belsky, DEP/DAQC, NERO
Vic Karaian, DEP/DSW, NERO
John Simpson, DEP/DWW, Boston

CHARLESTOWN



PRESERVATION

SOCIETY

RECEIVED

DEC 12 1991

MEPA

December 12, 1991

Susan Tierney, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attention: William Gage/MEPA Unit

Re: EOE A #8883

Buildings B & C Charlestown Navy Yard Biomedical Research Center

Dear Secretary Tierney:

The Trustees of the Charlestown Preservation Society, an organization with over 400 Charlestown residents as members, protest against the request for waiver of MEPA Regulations (301 CMR 11.18) for the proposed Buildings B & C of the Biomedical Research Center in the Charlestown Navy Yard. This request for waiver of EIR's for these buildings by the Boston Redevelopment Authority is unwarranted and unjustified.

The waiver request should be denied because, among other factors:

- a.) The community deserves the full regulatory process for such a large scale development with such dramatic impacts on Charlestown. The BRA claimed at the December 6 scoping session that "since the impacts are insignificant", a waiver is warranted. The BRA has used this kind of argument all along, and it continues to be incomprehensible.
- b.) These buildings are part of Phase 2 of the Yard's End development and, as such, there is adequate time for proper review processes to take place.
- c.) Past experiences with the Project proponent have not left the community with adequate trust that "promises" will be kept. Therefore, following proper regulatory processes is even more important. It is critical that all the outstanding environmental issues be resolved and mitigation (part of a normal EIR review) be clearly outlined and agreed upon before this regulatory phase is complete. To waive the EIR years in advance without mitigation clarified and committed to is clearly imprudent and unfair to the community.

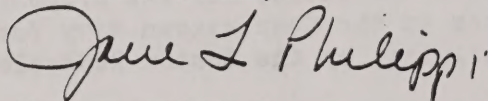
PAGE 2

EOEA # 8883

d.) The BRA argues that the cost of the regulatory process is an undue hardship. At the same time, the BRA acknowledges that much of the environmental analysis has already taken place. If the latter is really true, then the time and resources to complete the process will be minimized. In addition, following normal regulatory processes indeed do require resources, but this is a normal expected cost of doing business.

e.) Buildings in the Phase 1 part of the Yard's End development have already been grandfathered back to the original 1977 approvals, something that can easily be questioned given the enormous changes in Charlestown since then and in the Navy Yard plans. In addition, many exceptions to Chapter 91 regulations have been granted in order to allow for greater buildout and higher elevations than would have been allowed under those rules. We can't help but feel that we as citizens are continuously being denied the protection of regulations established with good intent to protect us and our environment. We strongly urge you not to allow this to continue.

Sincerely yours,



Jane T. Philippi

President, Charlestown Preservation Society

cc: Trustees, CPS
ad hoc Coalition
CNC
BRA
Other

0660m

Constellation Wharf

RECEIVED

DEC 17 1991

MEPA

Ms. Susan Tierney, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, Massachusetts 02202

December 12, 1991

Dear Secretary Tierney:

On behalf of the owners of Constellation Wharf, the Board members are responding to the Environmental Notification Form (ENF) filed by the Boston Redevelopment Authority (BRA). Please note that as residents of the Charlestown Navy Yard we have a personal interest in the fulfillment of a plan for the future of the Yard which successfully accommodates residential, commercial and visitor needs.

Our comments are in response to the BRA request for a waiver of the EIR requirement. We feel that in light of the granting of a waiver for Phase One of Yard's End, it becomes more critical to fully examine the environmental implications of Phase Two. The request for waiver is predicated on several premises which the Board believes to be understated or in error. We believe, at a minimum, the following merit additional attention:

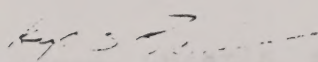
- 1) The "substantial delay...should be considered undue hardship"
The MEPA regulations clearly state that hardship is not defined by delay in compliance. Given the significant issues at stake, an approximate, six-month delay for completion of the EIR can not be construed as undue hardship.
- 2) The "environmental impacts have already been studied in...the DSEIR and FSEIR"
The studies referenced were general in nature to the Master Plan, not to the specific projects of Buildings B and C. We feel strongly that the impacts of those buildings do need to be further examined through a project EIR.
- 3) The "impacts of the project are insignificant"
Given the potential impacts to the waterways surrounding the project, the requirements for public access around and through the project, and the concerns of the current residents of the Navy Yard, the impacts of this project are far from "insignificant."

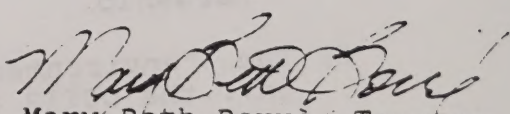
- 4) "Ample and unconstrained infrastructure exists to support the project"

The outstanding issues relating to vehicular traffic on the perimeters of and within the Navy Yard remain unresolved. Despite "a comprehensive analysis of transportation aspects," there are many of those aspects, such as creation of Gate 6, changes to the Mystic Channel Bridge, plans for and implementation of a Transportation Management Association for the Yard, a Medford Street Bypass, and the numerous unresolved questions about City Square, requiring further analysis. It is clear that present infrastructure is insufficient and future infrastructure projects are yet to be clearly defined which support the Yard's End project. We urge detailed and full examination. One need only examine the present situation of First Avenue to conclude that current attempts to control parking and traffic have been unsuccessful. The parking of visitors and employees, and commercial traffic is currently poorly defined and unenforceable. Additional demands, without detailed planning and a means of enforcement, will make the area unpassable and deteriorate the quality of life.

The Board of Constellation Wharf strongly urges you to reject the BRA request for a waiver of an EIR for Phase Two of the Yard's End. We support coordinated and thoughtful growth, and welcome development which will improve the value of the Navy Yard and its quality of life. We appreciate the opportunity to participate in this process.

Sincerely,


Kip Becker, Trustee


Mary Beth Borrè, Trustee

On Behalf of the Board of Trustees

SHIPWAYS CONDOMINIUM ASSOCIATION
Board of Managers
Shipways Place
Charlestown, MA. 02129

bu

Tom Fahey, Pres.
Unit 35
Kathleen Schatz, V. Pres.
Unit 29
Kevin Farrell, Treas.
Unit C-6

Pat Brennan, Cler
Unit 6
Frank Deltergo
Unit 17

December 10, 1991

Susan Tierney
Secretary of Environmental Affairs
100 Cambridge Street
Boston, Ma. 02202

RECEIVED
DEC 12 1991
MEPA

Dear Ms. Tierney

Attn: MEPA Unit - Project 88-83

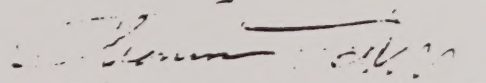
As president of the board of managers of the Shipway Place Condominium Association, I would like to express my opposition to any environmental waivers being granted in the development of Buildings B and C in Yard's End of the Charlestown Navy Yard. Experience has proven that even with full review of all the requirements, the BRA and the Raymond Group have managed to allude the intent of environmental protection regulations.

A look at Constellation Wharf and Flagship Wharf are two prime examples of construction which in no way blends with the historic buildings which are such an asset to the area. The height suggested at Yard's End for Buildings A, B, and C and the hotel will compound the earlier wrong decisions, and bring to Yard's End a density which is untenable and a look which is totally out of character with the surrounding area.

The only help we, as residents can expect, is from state and federal agencies such as yours whose mission it is to protect us from the bad judgments of developers and local agencies who support these judgments. I plead that you not be swayed by some misguided necessity to jump-start the economy with this development. The approvals the developer already has in hand for Building A and the hotel should be sufficient to get construction off the ground. While these projects are moving forward, the full appropriate environmental review for Buildings B and C can take place without need for waiver.

Thank you for your consideration.

Sincerely yours


Thomas J. Fahey
President

20 Soley Street
Charlestown, Ma. 02129
December 9, 1991

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DEC 11 1991

MEPA

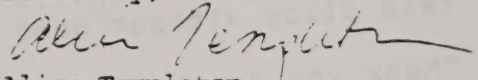
Secretary Susan Tierney
100 Cambridge Street
Boston, Ma. 02202

Dear Secretary Tierney,

As a Charlestown resident I am concerned over the fact that the Boston Redevelopment Authority has requested that an Environmental Impact Study be eliminated from the process of developing the Shipyard in Charlestown. I feel very strongly that the environment should be protected and this construction without an impact study is not satisfactory and should not be allowed.

The purpose of our Government is to protect its people—hence we have rules to protect us and our environment; these rules should not be waived for any reason, especially not that of governmental convenience to serve its own aims ^{instead of} ~~and not~~ those of the people it supposedly represents. The time for environmental protection is long overdue!

Sincerely,


Alice Templeton

6 ...
Charleston, Ma 02129
Dec 8, 1991

Secretary Susan Tierney
100 Cambridge St
Charleston, Ma. 02129

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DEC 1 1991
MEPA

Dear Secretary Tierney,

We do need an E.I.R.
on the Navy Yard in Charleston
Please do not waive this
requirement - what good can
a waiver do at this time?

Sincerely,
Carol Shear

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DEC 11 1991

MEPA

11 Russell Street
Charlestown, Ma. 02129
December 10, 1991

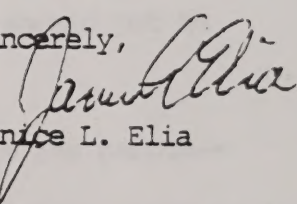
Environmental Affairs
Secretary Susan Tierney
100 Cambridge Street
Boston, Ma.

Dear Secretary Tierney:

As a Charlestown resident, I would like to voice my opposition to the BRA's request to waive the environmental impact report for Phase II of the Naval Shipyard development. Phase II is not scheduled to be built until 1996 and we do not know the environmental impacts of Phase I or the development scheduled for City Square.

It is imperative that this E.I.R. not be waived.

Sincerely,


Janice L. Elia

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DEC 11 1991

MEPA

55 Main Street; No. 2
Charlestown, Ma. 02129
December 10, 1991

Mr. William T. Gage
Regional Planner
Associate Environmentalist
MEPA Unit
100 Cambridge Street
Boston, Ma. 02202

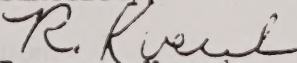
Dear Mr. Gage:

Congratulations on conducting a well-organized professional meeting recently in B.R.A. Headquarters in The Charlestown Naval Shipyard. You handled all questions well and treated all parties very fairly.

As a resident of Charlestown, I am very concerned that the Boston Redevelopment Authority is now requesting a waiver from the environmental impact report that is part of the development process. Phase II is not scheduled to be built until 1991, why is the BRA so anxious to waive the impact report with the construction so far away, with Phase I not yet begun and with the CANA sites not yet developed? (all major considerations)

It is imperative that an impact study be completed later on in the development process--not eliminated at this time. The Shipyard is one of Boston's most desirable properties and should be treated accordingly. WE CANNOT AFFORD TO MAKE MISTAKES, AND ELIMINATING AN ENVIRONMENTAL IMPACT STUDY WOULD BE A MISTAKE.

Sincerely,


Rosemary Kverek

CC: Secretary Susan Tierney

RECEIVED

DEC 11 1991

MEPA

55 Main Street; No. Two
Charlestown, Ma. 02129
December 10, 1991

Susan Tierney
Secretary of Environmental Affairs
100 Cambridge Street
Boston, Ma. 02202

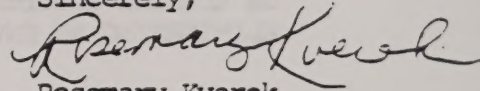
Dear Ms. Tierney:

I am writing to you with regard to the Naval Shipyard in Charlestown. This property is one of the most desirable and unique properties in Charlestown and should be developed with a great deal of foresight-consideration for the environment.

The Boston Redevelopment Authority wants to bypass a very crucial part of the development process--The E.I.R. for the part that will not be developed until 1996. Phase I is not even built yet and the BRA wants to eliminate the E.I.R. for Phase II. Please be strong in your convictions and do require them to have an E.I.R. for Phase II. We do not know how the environment will be really effected by Phase I and why should the E.I.R. for the second phase be eliminated before we know the results of the first phase?

PLEASE MAKE THE B.R.A. ACCOUNTABLE BY NOT GRANTING THEM THE EXCLUSION OF THE E.I.R. IN THE PROCESS..... WE NEED THE ENTIRE PROCESS INCLUDED TO MAKE THE NAVAL YARD AN EXCELLENT PLACE TO LIVE AND WORK. PLEASE DON'T LET THIS WONDERFUL AREA BE MADE INTO SOMETHING WE WILL HAVE TO LIVE WITH AND WHICH WE WILL REGRET....

Sincerely,


Rosemary Kverek

CC: Councilman R. Travaglini

COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS SENATE
STATE HOUSE, BOSTON 02131

THOMAS F. BIRMINGHAM
CLERK OF THE SENATE
OFFICE OF THE CLERK
STATE HOUSE, BOSTON 02131

COMMITTEES:
EDUCATION, ARTS AND
HUMANITIES, SENATE CHAIR
COUNTIES
CRIMINAL JUSTICE
HUMAN SERVICES AND
ELDERLY AFFAIRS
JUDICIARY
LOCAL AFFAIRS
TAXATION

December 11, 1991

Ms. Susan F. Tierney
Secretary
Executive Office of Environmental Affairs
100 Cambridge St.
Boston, MA 02202

Re: Charlestown Navy Yard Biomedical Research Center Buildings B & C - EOEA # 8883

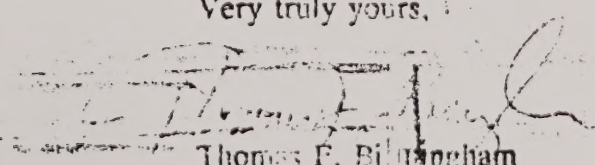
Dear Secretary Tierney:

I am writing to communicate the concerns of several of my constituents regarding the Boston Redevelopment Authority's request for a waiver of an Environmental Impact Report for Phase II of the development of the Charlestown Navy Yard.

Questions have been raised regarding the need for a waiver at this time since the planning for Phase I, which presumably will have an impact on Phase II, has not yet been completed. I believe these are legitimate inquiries and I would very much appreciate a prompt response regarding the issue of the need for an EIR waiver at this time.

Thank you for your assistance and anticipated cooperation.

Very truly yours,


Thomas F. Birmingham

